

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
	435	320.1
BY	DRAFTSMAN	

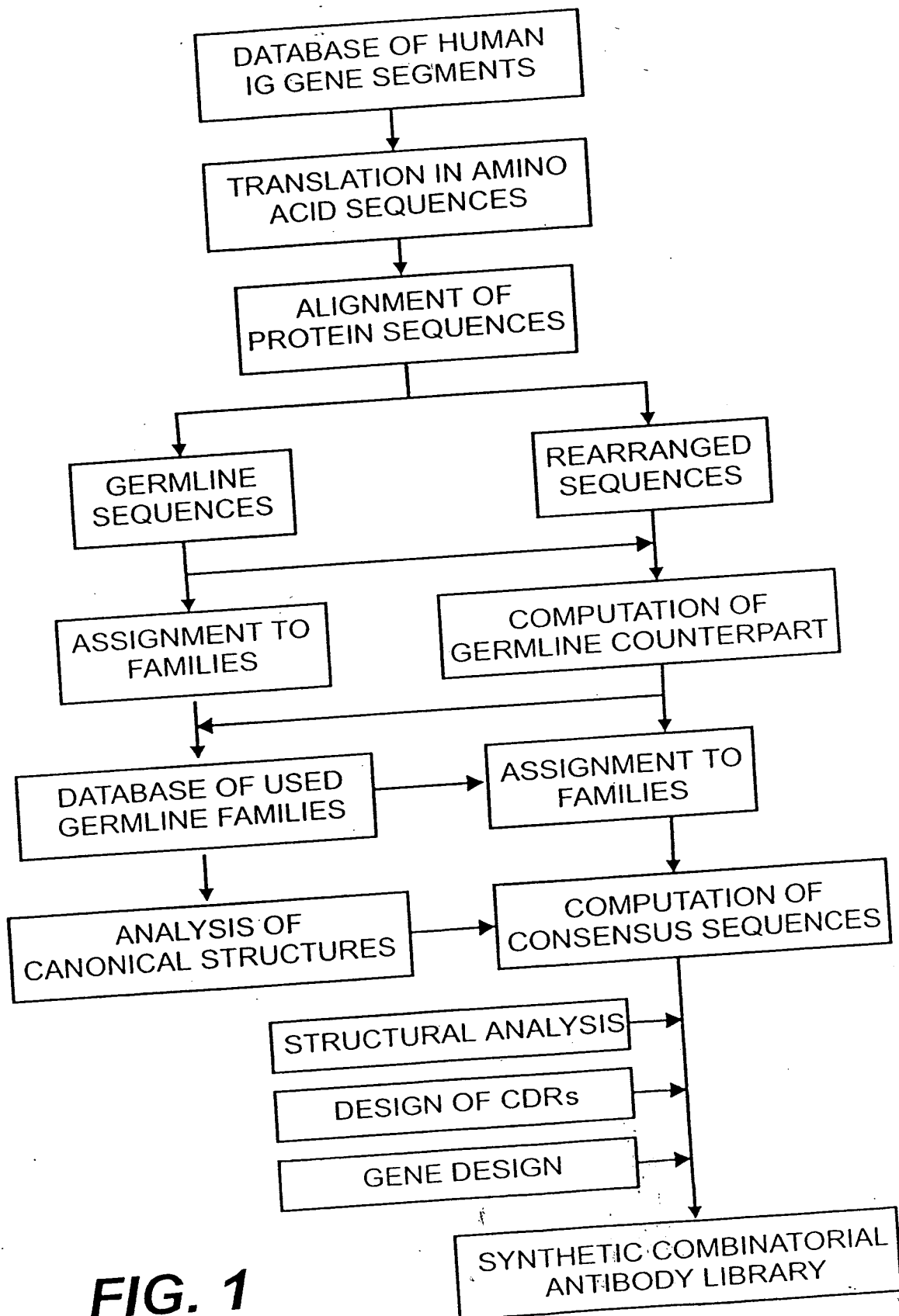


FIG. 1

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSHAH		

framework 1																				CDRI										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	A	B	C
Vk1	D	I	Q	M	T	Q	S	P	S	S	L	S	A	S	V	G	D	R	V	T	I	T	C	R	A	S	Q	-	-	-
Vk2	D	I	V	M	T	Q	S	P	L	S	L	P	V	T	P	G	E	P	A	S	I	S	C	R	S	S	Q	S	L	L
Vk3	D	I	V	L	T	Q	S	P	A	T	L	S	L	S	P	G	E	R	A	T	L	S	C	R	A	S	Q	S	-	-
Vk4	D	I	V	M	T	Q	S	P	D	S	L	A	V	S	L	G	E	R	A	T	I	N	C	R	S	S	Q	S	V	L

	CDRI										framework 2										CDR II									
	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54			
D	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Vk5	-	-	G	I	S	S	Y	L	A	W	Y	Q	Q	K	P	G	K	A	P	K	L	L	I	Y	A	S	S			
Vk6	H	S	-	N	G	Y	N	Y	L	D	W	Y	L	Q	K	P	G	Q	S	P	Q	L	L	I	Y	L	G			
Vk7	-	-	V	S	S	S	Y	L	A	W	Y	Q	Q	K	P	G	Q	A	P	R	L	L	I	Y	G	A	S			
Vk8	Y	S	N	N	K	N	Y	L	A	W	Y	Q	Q	K	P	G	Q	P	P	K	L	L	I	Y	W	A	S			

FIG. 2A

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

CDRII		framework 3																												
	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Vk1	Q	S	G	V	P	S	R	F	S	G	S	G	S	G	T	D	F	T	L	T	I	S	S	L	Q	P	E	D	F	A
Vk2	A	S	G	V	P	D	R	F	S	G	S	G	S	G	T	D	F	T	L	K	I	S	R	V	E	A	E	D	V	G
Vk3	A	T	G	V	P	A	R	F	S	G	S	G	S	G	T	D	F	T	L	T	I	S	S	L	E	P	E	D	F	A
Vk4	E	S	G	V	P	D	R	F	S	G	S	G	S	G	T	D	F	T	L	T	I	S	S	L	Q	A	E	D	V	A

framework 3			CDRIII			framework 4																			
85	86	87	88	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109
Vk1	T	Y	C	Q	Q	Q	H	Y	T	T	P	P	T	F	G	Q	G	T	K	V	E	I	K	R	T
Vk2	V	Y	C	Q	Q	Q	H	Y	T	T	P	P	T	F	G	Q	G	T	K	V	E	I	K	R	T
Vk3	V	Y	C	Q	Q	Q	H	Y	T	T	P	P	T	F	G	Q	G	T	K	V	E	I	K	R	T
Vk4	V	Y	C	Q	Q	Q	H	Y	T	T	P	P	T	F	G	Q	G	T	K	V	E	I	K	R	T

FIG. 2B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

framework 1																	CDRI												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
vλ1	Q	S	V	L	T	Q	P	P	S	-	V	S	G	A	P	G	Q	R	V	T	I	S	C	S	G	S	S	S	I
vλ2	Q	S	A	L	T	Q	P	A	S	-	V	S	G	S	P	G	Q	S	I	T	I	S	C	T	G	T	S	S	D
vλ3	S	Y	E	L	T	Q	P	P	S	-	V	S	V	A	P	G	Q	T	A	R	I	S	C	S	G	D	A	-	-

CDRI		framework 2												CDR II																
29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57		
vλ1	G	S	N	-	Y	V	S	W	Y	Q	Q	L	P	G	T	A	P	K	L	L	I	Y	D	N	N	Q	R	P	S	G
vλ2	G	G	Y	N	Y	V	S	W	Y	Q	Q	H	P	G	K	A	P	K	L	M	I	Y	D	V	S	N	R	P	S	G
vλ3	G	D	K	-	Y	A	S	W	Y	Q	Q	K	P	G	Q	A	P	V	L	V	I	Y	D	D	S	D	R	P	S	G

FIG. 2C

	CDRIII	framework 4
$v\lambda 1$	C 88 Q 89 Q 90 H 91 Y 92 F 93 F 94 P 95 P 96 V 97 F 98 G 99 G 100 G 101 F 102 K 103 L 104 F 105 V 106 L 107	
$v\lambda 2$	C 88 Q 89 Q 90 H 91 Y 92 T 93 T 94 P 95 P 96 V 97 F 98 G 99 G 100 G 101 T 102 K 103 L 104 T 105 V 106 L 107	
$v\lambda 3$	C 88 Q 89 Q 90 H 91 Y 92 T 93 T 94 P 95 P 96 V 97 F 98 G 99 G 100 G 101 T 102 K 103 L 104 T 105 V 106 L 107	

FIG. 2D

APPROVED	O.G.FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

framework 1																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
VH1A	Q	V	Q	L	V	Q	S	G	A	E	V	K	K	P	G	S	V	K	V
VH1B	Q	V	Q	L	V	Q	S	G	A	E	V	K	K	P	G	A	S	V	K
VH2	Q	V	Q	L	K	E	S	G	P	A	L	V	K	P	T	Q	T	L	T
VH3	E	V	Q	L	V	E	S	G	G	L	V	Q	P	G	S	L	R	L	S
VH4	Q	V	Q	L	Q	E	S	G	P	G	L	V	K	P	S	E	T	L	S
VH5	E	V	Q	L	V	Q	S	G	A	E	V	K	K	P	G	E	S	L	K
VH6	Q	V	Q	L	Q	Q	S	G	P	G	L	V	K	P	S	Q	T	L	S
	20	21	22	23	24	25	26	27	28	29	30								
	S	T	F	S	S	I	S	S	F	T	S	A	I	S	G	D	S	V	S

framework 2										CDR II									
CDRI																			
31	A	B	C	D	E	F	G	H	I	32	A	B	C	D	E	F	G	H	I
S	-	-	Y	A	I	S	W	V	R	Q	A	P	G	Q	G	L	E	W	M
VH1A	S	-	-	Y	M	H	W	V	R	Q	A	P	G	Q	G	L	E	W	M
VH1B	T	S	G	V	G	V	G	W	I	R	Q	P	P	G	K	A	L	E	W
VH2	S	-	-	Y	A	M	S	W	V	R	Q	A	P	G	K	G	L	E	V
VH3	S	-	-	Y	Y	W	S	W	I	R	Q	P	P	G	K	G	L	E	W
VH4	S	-	-	Y	W	I	G	W	V	R	Q	M	P	G	K	G	L	E	W
VH5	S	-	-	Y	W	I	G	W	V	R	Q	M	P	G	K	G	L	E	W
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	T	S	G	V	G	V	G	W	I	R	Q	P	P	G	K	A	L	E	W
	S	-	-	Y	A	M	S	W	V	R	Q	A	P	G	K	G	L	E	V
	S	-	-	Y	Y	W	S	W	I	R	Q	P	P	G	K	G	L	E	W
	S	-	-	Y	W	I	G	W	V	R	Q	M	P	G	K	G	L	E	W

FIG. 2E

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

VH6	SNSAAWNWIRQSPPGRGLEWLGRTYYR-SKWYN																															
	CDRII										framework 3																					
	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	
VH1A	N	Y	A	Q	K	F	Q	G	R	V	T	I	T	A	D	E	S	T	S	T	A	Y	M	E	L	S	S	L	R	S	E	
VH1B	N	Y	A	Q	K	F	Q	G	R	V	T	M	T	R	D	T	S	I	S	T	A	Y	M	E	L	S	S	L	R	S	E	
VH2	Y	Y	S	T	S	L	K	T	R	L	T	I	S	K	D	T	S	K	N	Q	V	V	L	T	M	T	N	M	D	P	V	
VH3	Y	Y	A	D	S	V	K	G	R	F	T	I	S	R	D	N	S	K	N	T	L	Y	L	Q	M	N	S	L	R	A	E	
VH4	N	Y	N	P	S	L	K	S	R	V	T	I	S	V	D	T	S	K	N	Q	F	S	L	K	L	S	S	V	T	A	A	
VH5	R	Y	S	P	S	F	Q	G	Q	V	T	I	S	A	D	K	S	I	S	T	A	Y	L	Q	W	S	S	L	K	A	S	
VH6	D	Y	A	V	S	V	K	S	R	I	T	I	N	P	D	T	S	K	N	Q	F	S	L	Q	L	N	S	V	T	P	E	
	framework 3										CDRIII										framework 4											
	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655	8655
VH1A	D	T	A	V	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S	
VH1B	D	T	A	V	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S	
VH2	D	T	A	T	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S	
VH3	D	T	A	V	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S	
VH4	D	T	A	V	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S	

FIG. 2F

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

VH5	D	T	A	M	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S
VH6	D	T	A	V	Y	Y	C	A	R	W	G	G	D	G	F	Y	A	M	D	Y	W	G	Q	G	T	L	V	T	V	S	S

FIG. 2G

APPROVED	0.6.FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

```

.D I Q M T Q S P S S L S A S V G D
EcoRV
~~~~~
GATATCCAGA TGACCCAGAG CCCGTCTAGC CTGAGCGCGA GCGTGGGTGA
CTATAGGTCT ACTGGGTCTC GGCAGATCG GACTCGCGCT CGCACCCACT

R V T I T C R A S Q G I S S Y L
PstI
~~~~~
TCGTGTGACC ATTACCTGCA GAGCGAGCCA GGGCATTAGC AGCTATCTGG
AGCACACTGG TAATGGACGT CTCGCTCGGT CCCGTAATCG TCGATAGACC

A W Y Q Q K P G K A P K L L I Y A
KpnI SexAI AseI
~~~~~
CGTGGTACCA GCAGAAACCA GGTAAAGCAC CGAAACTATT AATTATGCA
GCACCATGGT CGTCTTTGGT CCATTTCGTG GCTTTGATAA TTAAATACGT

A S S L Q S G V P S R F S G S
SanDI BamHI
~~~~~
GCCAGCAGCT TGCAAAGCGG GGTCCCCTCC CGTTTAGCG GCTCTGGATC
CGGTCGTCGA ACGTTTCGCC CCAGGGCAGG GCAAATATCG CGAGACCTAG

```

FIG. 3A

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

G T D F T L T I S S L Q P E D F
 Eco57I
 ~~~~~~

BamHI  
 ~~~~~~

CGGCACTGAT TTACCCCTGA CCATTAGCAG CCTGCAACCT GAAGACTTTG
 GCCGTGACTA AAATGGGACT GGTAATCGTC GGACGTTGGA CTTCTGAAAC

A T Y Y C Q Q H Y T T P P T F G Q
 MSCI
 ~~~~~~

CGACCTATTA TTGCCAGCAG CATTATACCA CCCC GCCGAC CTTTGGCCAG  
 GCTGGATAAT AACGGTCGTC GTAATATGGT GGGCGGCTG GAAACCGGTC

G T K V E I K R T  
 BsiWI  
 ~~~~~~

GGTACGAAAG TTGAAATTAA ACGTACG
 CCATGCTTTC AACTTTAATT TGCATGC

FIG. 3B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

D I V M T Q S P L S L P V T P G E
 EcoRV BanII
 ~~~~~  
 GATATCGTGA TGACCCAGAG CCCACTGAGC CTGCCAGTGA CTCCGGGCGA  
 CTATAGCACT ACTGGGTCTC GGTGACTCG GACGGTCACT GAGGCCCGCT  
  
 P A S I S C R S S Q S L L H S N  
 PstI  
 ~~~~~  
 GCCTGCGAGC ATTAGCTGCA GAAGCAGCCA AAGCCTGCTG CATAGCAACG
 CGGACGCTCG TAATCGACGT CTTGTCGGT TTCGGACGAC GTATCGTTGC

 G Y N Y L D W Y L Q K P G Q S P Q
 KpnI SexAI
 ~~~~~  
 GCTATAACTA TCTGGATTGG TACCTTCAAA AACCAGGTCA AAGCCCGCAG  
 CGATATTGAT AGACCTAACC ATGGAAGTTT TTGGTCCAGT TTCGGGCGTC

**FIG. 3C**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

L L I Y L G S N R A S G V P D R F

AseI

SaDI

~~~~~

CTATTAATT ATCTGGGCAG CAACCGTGCC AGTGGGTCC CGATCGTTT
 GATAATTAA TAGACCCGTC GTTGGCACGG TCACCCACAG GCCTAGCAAA

S G S G S G T D F T L K I S R V

BamHI

~~~~~

TAGCGGCTCT GGATCCGGCA CCGATTTTAC CCTGAAATT AGCCGTGTGG  
 ATCGCCGAGA CCTAGGCCGT GGCTAAATG GACTTTTAA TCGGCACACC

E A E D V G V Y Y C Q Q H Y T T P

Eco57I

~~~~~

BbsI

~~~~~

AAGCTGAAGA CGTGGCGTG TATTATTGCC AGCAGCATTA TACCACCCCG  
 TTCGACTTCT GCACCCGCAC ATAATAACGG TCGTCGTAAT ATGGTGGGGC

FIG. 3D

|           |       |           |  |
|-----------|-------|-----------|--|
| APPROVED  |       | O.G. FIG. |  |
| BY        | CLASS | SUBCLASS  |  |
| DRAFTSMAN |       |           |  |

|                                                 |   |   |   |       |   |   |   |       |   |   |   |   |   |
|-------------------------------------------------|---|---|---|-------|---|---|---|-------|---|---|---|---|---|
| P                                               | T | F | G | Q     | G | T | K | V     | E | I | K | R | T |
|                                                 |   |   |   |       |   |   |   |       |   |   |   |   |   |
|                                                 |   |   |   | MscI  |   |   |   |       |   |   |   |   |   |
|                                                 |   |   |   | ~~~~~ |   |   |   | BsiWI |   |   |   |   |   |
|                                                 |   |   |   | ~~~~~ |   |   |   | ~~~~~ |   |   |   |   |   |
| CCGACCCTTTG GCCAGGGTAC GAAAGTTGAA ATTAAACGTA CG |   |   |   |       |   |   |   |       |   |   |   |   |   |
| GGCTGGAAC CGTCCCCATG CTTCAACTT TAATTGCAT GC     |   |   |   |       |   |   |   |       |   |   |   |   |   |

**FIG. 3E**

~~~~~  
GATATCGTGC TGACCCAGAG CCCGGCGACC CTGAGCCTGT CTCGGGGCGGA
CTATAGCAG ACTGGTCTC GGGCCGCTGG GACTCGGACA GAGGCCCGCT

ACGTGCGACC CTGAGCTGCA GAGCGAGCCA GAGCGTGAGC AGCAGCTATC
TGCACGCTGG GACTCGACGT CTCGCTCGGT CTCGCACTCG TCGTCGATAG

[illegible]

FIG. 3F

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

TGGCGTGGTA CCAGCAGAAA CCAGGTCAAG CACCGCGTCT ATTAATTTAT
 ACCGCACCAT GGTCGTCTTT GTCCAGTTC GTGGCGCAGA TAATTAAATA

G A S S R A T G V P A R F S G S G
 BamHI

GGCGGAGCA GCCGTGCAAC TGGGGTCCCCG GCGCGTTTAA GCGGCTCTGG
 CCGCGCTCGT CGGCACGTTG ACCCCAGGGC CGCGCAAAT CGCCGAGACC

S G T D F T L T I S S L E P E D
 Eco57I
 ~~~~~

BamHI  
 ~~~~~  
 BbsI
 ~~~~~

ATCCGGCAG GATTTACCC TGACCATTAG CAGCCTGGAA CCTGAAGACT  
 TAGGCCGTGC CTAAATGGG ACTGGTAATC GTCGGACCTT GGAATTCTGA

FIG. 3G

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|                                                                                                                                                           |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F                                                                                                                                                         | A | V | Y | Y | C | Q | Q | H | Y | T | T | P | P | T | F | G |
| <p>TTGCCGGTGTA TTATTGCCAG CAGCATATATA CCACCCCGCC GACCTTTGGC<br/>       AACGCCACAT AATAACGGTC GTCGTAATAT GGTGGGGCGG CTGGAACCCG</p>                         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <p>Q G T K V E I K R T<br/>       MSCI BsiWI<br/>       ~~~~~<br/>       CAGGGTACGA AAGTTGAAAT TAAACGTACG<br/>       GTCCCATGCT TTCAACTTTA ATTTGCATGC</p> |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

**FIG. 3H**



|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

D I V M T Q S P D S L A V S L G E  
 EcoRV  
 ~~~~~  
 BanII
 ~~~~~  
 GATATCGTGA TGACCCAGAG CCCGGATAGC CTGGCGGTGA GCCTGGGCGA  
 CTATAGCACT ACTGGGTCTC GGGCCTATCG GACCGCCACT CGGACCCGCT  
  
 R A T I N C R S S Q S V L Y S S  
 PstI  
 ~~~~~  
 ACGTGCAGCC ATTAAGTCA GAAGCAGCCA GAGCGTGCTG TATAGCAGCA
 TGCACGCTGG TAATTGACGT CTTCGTCGGT CTCGCACGAC ATATCGTCGT

 N N K N Y L A W Y Q Q K P G Q P P
 KpnI
 SexAI
 ~~~~~  
 ACAACAAAA CTATCTGGCG TGGTACCAGC AGAAACCAGG TCAGCCGCCG  
 TGTGTTTTT GATAGACCGC ACCATGGTCG TCTTTGGTCC AGTCGGCGGC

**FIG. 31**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

K L L I Y W A S T R E S G V P D R

AseI

SanDI

~~~~~

AAACTATTAA TTTATTGGGC ATCCACCCGT GAAAGCGGG TCCCGGATCG
 TTGATAATT AAATAACCCG TAGGTGGCA CTTTCGCCCC AGGCCCTAGC

F S G S G S G T D F T L T I S S

BamHI

~~~~~

TTTtagCGGC TCTGGATCCG GCACTGATT TACCCTGACC ATTTCGTCCC  
 AAAATCGCCG AGACCTAGGC CGTGACTAAA ATGGGACTGG TAAAGCAGGG

L Q A E D V A V Y Y C Q Q H Y T T

Eco57I

~~~~~

BbsI

~~~~~

FIG. 3J

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

TGCAAGCTGA AGACGTGGCG GTGTATTATT GCCAGCAGCA TTATACCACC  
 ACGTTCGACT TCTGCACCGC CACATAATAA CGGTCGTCGT AATATGGTGG

|            |            |            |            |       |   |   |   |   |   |   |   |   |   |   |
|------------|------------|------------|------------|-------|---|---|---|---|---|---|---|---|---|---|
| P          | P          | T          | F          | G     | Q | G | T | K | V | E | I | K | R | T |
| MscI       |            |            |            |       |   |   |   |   |   |   |   |   |   |   |
| ~~~~~      |            |            |            |       |   |   |   |   |   |   |   |   |   |   |
| BsiWI      |            |            |            |       |   |   |   |   |   |   |   |   |   |   |
| ~~~~~      |            |            |            |       |   |   |   |   |   |   |   |   |   |   |
| CCGCCGACCT | TTGGCCAGGG | TACGAAAGTT | GAAATTAAAC | GTACG |   |   |   |   |   |   |   |   |   |   |
| GGCGGCTGGA | AACCGGTCCC | ATGCTTTCAA | CTTTAATTG  | CATGC |   |   |   |   |   |   |   |   |   |   |

**FIG. 3K**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

Q S V L T Q P P S V S G A P G Q R  
 SexAI

CAGAGCGTGC TGACCCAGCC GCCTTCAGTG AGTGGCGCAC CAGTCAGCG  
 GTCTCGCACG ACTGGGTCGG CGGAAGTCAC TCACCGCGTG GTCCAGTCGC

Eco57I

V T I S C S G S S S N I G S N Y

BssSI

TGTGACCATC TCGTGTAGCG GCAGCAGCAG CAACATTGGC AGCAACTATG  
 ACACGGGTAG AGCACATCGC CGTCGTCGTC GTTGTAACCG TCGTTGATAC

V S W Y Q Q L P G T A P K L L I Y

KpnI

BbeI

TGAGCTGGTA CCAGCAGTTG CCCGGGACGG CGCCGAAACT GCTGATTTAT  
 ACTCGACCAT GGTCGTCAAC GGGCCCTGCC GCGGCTTTGA CGACTAAATA

FIG. 4A

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

D N N Q R P S G V P D R F S G S K  
 Bsu36I BamHI  
 ~~~~~  
 GATAACAACC AGCGTCCCCTC AGGCGTGCCG GATCGTTTAA GCGGATCCAA
 CTATTGTTGG TCGCAGGGAG TCCGCACGGC CTAGCAAAT CCGCTAGGTT
 S G T S A S L A I T G L Q S E D
 BbsI
 ~~~~~  
 AAGCGGCACC AGCGCGAGCC TTGCGATTAC GGGCCTGCAA AGCGAAGACG  
 TTCGCCGTGG TCGCGCTCGG AACGCTAATG CCCGGACGTT TCGCTTCTGC  
 E A D Y Y C Q Q H Y T T P P V F G  
 AAGCGGATTA TTATTGCCAG CAGCATTATA CCACCCCGCC TGTGTTTGGC  
 TTCGCCTAAT AATAACGGTC GTCGTAATAT GGTGGGGCGG ACACAAACCG

**FIG. 4B**

|          |           |          |
|----------|-----------|----------|
| APPROVED | O.G. FIG. |          |
|          | CLASS     | SUBCLASS |
| BY       | CRAFTSMAN |          |

|            |   |   |   |            |     |         |   |   |
|------------|---|---|---|------------|-----|---------|---|---|
| G          | G | T | K | L          | T   | V       | L | G |
|            |   |   |   | HpaI       |     | MscI    |   |   |
|            |   |   |   | ~~~~~      | ~~~ |         |   |   |
| GGCGGCACGA |   |   |   | AGTTAACCGT |     | TCTTGGC |   |   |
| CCGCCGTGCT |   |   |   | TCAATTGGCA |     | AGAACCG |   |   |

**FIG. 4C**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | C.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

Q S A L T Q P A S V S G S P G Q S  
 SexAI  
 ~~~~~

CAGAGCGCAC TGACCCAGCC AGCTTCAGTG AGCGGCTCAC CAGGTCAGAG
 GTCTCGCGTG ACTGGGTCGG TCGAAGTCAC TCGCCGAGTG GTCCAGTCTC
 Eco57I
 ~~~~~

I T I S C T G T S S D V G G Y N  
 BssSI  
 ~~~~~

CATTACCATC TCGTGTACGG GTAGTAGCAG CGATGTGGGC GGCTATAACT
 GTAATGGTAG AGCACATGCC CATGATCGTC GCTACACCCG CCGATATTGA

Y V S W Y Q Q H P G K A P K L M I
 KpnI XmaI BbeI
 ~~~~~

ATGTGAGCTG GTACCAGCAG CATCCCGGGA AGGCGCCGAA ACTGATGATT  
 TACACTCGAC CATGGTCGTC GTAGGGCCCT TCCGGGGCTT TGACTACTAA

**FIG. 4D**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

Y D V S N R P S G V S N R F S G S  
 Bsu36I BamHI  
 ~~~~~~  
 TATGATGTGA GCAACCGTCC CTCAGGCGTG AGCAACCGTT TTAGCGGATC
 ATACTACACT CGTTGGCAGG GAGTCCGCAC TCGTTGGCAA AATCGCCTAG
 K S G N T A S L T I S G L Q A E
 BamHI BbsI
 ~~~~~~  
 CAAAAGCGC AACACCGCA GCCTGACCAT TAGCGGCCGT CAAGCGGAAG  
 GTTTTCGCCG TTGTGGCGCT CGGACTGGTA ATCGCCGGAC GTTCGCCCTTC  
 D E A D Y Y C Q Q H Y T T P P V F  
 BbsI  
 ~~~~~~  
 ACGAAGCGGA TTATTATTGC CAGCAGCATT ATACCACCCC GCCTGTGTTT
 TGCTTCGCCT AATAATAACG GTCGTCGTAA TATGTGGGG CGGACACAAA

FIG. 4E

APPROVED	O.G. FIG.	
DY	CLASS	SUBCLASS
DRAFTSMAN		

G	G	G	T	K	L	T	V	L	G
							HpaI	MscI	
							~~~~~	~~~~~	
GGCGGCGGCA	CGAAGTTAAC	CGTTCTTTGGC							
CCGCCGCCGT	GCTTCAATTG	GCAAGAACCG							

**FIG. 4F**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

S Y E L T Q P P S V S V A P G Q T  
 SexAI  
 ~~~~~

AGCTATGAAC TGACCCAGCC GCCTTCAGTG AGCGTTGCAC CAGGTCAGAC
 TCGATACTTG ACTGGGTCGG CGGAAGTCAC TCGCAACGTG GTCCAGTCTG
 Eco57I
 ~~~~~

A R I S C S G D A L G D K Y A S  
 BssSI  
 ~~~~~

CGCGCGTATC TCGTGTAGCG GCGATGCGCT GGGCGATAAA TACGCGAGCT
 GCGCGCATAG AGCACATCGC CGCTACGCCA CCCGCTATTT ATGCGCTCGA

W Y Q Q K P G Q A P V L V I Y D D
 KpnI XmaI BbeI
 ~~~~~

**FIG. 4G**

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSHAH	SUBCLASS

GGTACCAGCA GAAACCCGGG CAGGCGCCAG TTCTGGTGAT TTATGATGAT  
 CCATGGTCGT CTTTGGGCCC GTCCGGGGTC AAGACCACTA AATACTACTA

S D R P S G I P E R F S G S N S G

Bsu36I

BamHI

~~~~~

~~~~~

TCTGACCGTC CCTCAGGCAT CCCGGAACGC TTTAGCCGGAT CCAACAGCGG  
 AGACTGGCAG GGAGTCCGTA GGGCCTTGCG AAATCGCCTA GGTGTGCGCC

N T A T L T I S G T Q A E D E A

BbsI

~~~~~

FIG. 4H

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

CAACACCGCG ACCCTGACCA TTAGCGGCAC TCAGGCGGAA GACGAAGCGG
 GTGTGGCGC TGGGACTGGT AATCGCCGTG AGTCCGCCCT CTGCTTCGCC

D Y Y C Q Q H Y T T P P V F G G G
 ATTATTATG CCAGCAGCAT TATACCACCC CGCCTGTGTT TGGCGCGGC
 TAATAATAAC GGTCGTCGTA ATATGGTGG GCGGACACAA ACCGCCGCCG

T K L T V L G
 HpaI MscI
 ~~~~~  
 ACGAAGTTAA CCGTTC TTGG C  
 TGCTTCAATT GGCAAGAACC G

**FIG. 4I**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

Q V Q L V Q S G A E V K K P G S S  
 MfeI  
 ~~~~~  
 CAGGTGCAAT TGGTTCAGTC TGGCGCGGAA GTGAAAAAAC CGGGCAGCAG
 GTCCACGTTA ACCAAGTCAG ACCGCGCCTT CACTTTTTTG GCCCGTCGTC
 V K V S C K A S G G T F S S Y A
 BspEI
 ~~~~~  
 CGTGAAAGTG AGCTGCAAG CCTCCGGAGG CACTTTTAGC AGCTATGCCA  
 GCACTTTCAC TCGACGTTTC GGAGGCCTCC GTGAAAAATCG TCGATACGCT  
 I S W V R Q A P G Q G L E W M G G  
 BstXI  
 ~~~~~  
 XhoI
 ~~~~~  
 TTAGCTGGGT GCGCCAAGCC CCTGGGCAGG GTCTCGAGTG GATGGGCGGC  
 AATCGACCCA CGCGGTTCCG GGACCCGTC CAGAGCTCAC CTACCCGCCG

**FIG. 5A**

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

I I P I F G T A N Y A Q K F Q G R  
 ATTATTCCGA TTTTGGCAC GCGAACTAC GCGAGAAGT TTCAGGGCCG  
 TAATAAGGCT AAAAACCGTG CCGCTTGATG CCGTCTTCA AAGTCCCGGC

V T I T A D E S T S T A Y M E L  
 BstEII

~~~~~

GGTGACCAT ACCGCGGATG AAAGCACCCAG CACCGCGTAT ATGGAAGTGA
 CCACTGGTAA TGGCGCCTAC TTTCGTGGTC GTGGCGCATA TACCTTGACT

S S L R S E D T A V Y Y C A R W G
 EagI BssHII

~~~~~

GCAGCCTGCG TAGCGAAGAT ACGGCCGTGT ATTATTGCGC GCGTTGGGC  
 CGTCGGACGC ATCGCTTCTA TGCCGGCACA TAATAACGCG CGCAACCCCG

FIG. 5B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

G D G F Y A M D Y W G Q G T L V T

Styl

~~~~~

GGCGATGGCT TTTATGCGAT GGATTATTGG GGCCAAGGCA CCCTGGTGAC
 CCGCTACCGA AAATACGCTA CCTAATAACC CCGGTTCCGT GGGACCACTG

V S S

BlpI

~~~~~

GGTTAGCTCA G  
 CCAATCGAGT C

**FIG. 5C**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

Q V Q Q L V Q S G A E V K K P G A S  
 MfeI

~~~~~

CAGGTGCAAT TGGTTCAGAG CGGCGCGGAA GTGAAAAAAC CGGGCGCGGAG
 GTCCACGTTA ACCAAGTCTC GCCGCGCCTT CACTTTTGTG GCCCGCGCTC

V K V S C K A S G Y T F T S Y Y

BspEI
 ~~~~~

CGTGAAAGTG AGCTGCAAG CCTCCGGATA TACCTTTACC AGCTATTATA  
 GCACTTTCAC TCGACGTTTC GGAGGCCTAT ATGGAATGG TCGATAATAT

M H W V R Q A P G Q G L E W M G W  
 BstXI XhoI

~~~~~

TGCACTGGGT CCGCCAAGCC CCTGGGCAGG GTCTCGAGTG GATGGGCTGG
 ACGTGACCCA GGCGGTTCCG GGACCCGTC CAGAGCTCAC CTACCCGACC

FIG. 5D

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSHAW | | |

I N P N S G G T N Y A Q K F Q G R
 ATTAACCCGA ATAGCGGCGG CACGAAC TAC GCGAGAAGT TTCAGGGCCG
 TAATTGGGCT TATCGCCGCC GTGCTTGATG CGCGTCTTCA AAGTCCCCGGC

V T M T R D T S I S T A Y M E L
 BstEII
 ~~~~~  
 GGTGACCATG ACCCGTGATA CCAGCAT TAG CACCGCGTAT ATGGAAC TGA  
 CCACTGGTAC TGGGCACTAT GTTCGTAATC GTGGCGCATA TACCTTGACT

S S L R S E D T A V Y C A R W G  
 EagI  
 ~~~~~  
 BssHII
 ~~~~~  
 GCAGCCTGCG TAGCGAAGAT ACGGCCGTGT ATTATTGCGC GCGTTGGGGC  
 CGTCGGACGC ATCGCTTCTA TGCCGGCACA TAATAACGCG CGCAACCCCCG

**FIG. 5E**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

G D G F Y A M D Y W G Q G T L V T

StyI

~~~~~

GGCGATGGCT TTTATGCGAT GGATTATTGG GGCCAAGGCA CCCTGGTGAC
 CCGCTACCGA AAATACGCTA CCTAATAACC CCGTTCCGT GGGACCACTG

V S S

BlpI

~~~~~

GGTTAGCTCA G  
 CCAATCGAGT C

**FIG. 5F**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

Q V Q Q L K E S G P A L V K P T Q T  
 MfeI

~~~~~

CAGGTGCAAT TGAAGAAAG CGGCCCGGCC CTGGTGAAC CGACCCAAAC
 GTCCACGTTA ACTTCTTTC GCCGGGCCGG GACCACTTG GCTGGGTTTG

L T L T C T F S G F S L S T S G
 BspEI

~~~~~

CCTGACCCCTG ACCTGTACCT TTTCCGGATT TAGCCTGTCC ACGTCTGGCG  
 GGA CTGGGAC TGGACATGGA AAAGGCCCTAA ATCGGACAGG TGCAGACCGC

V G V G W I R Q P P G K A L E W L  
 BstXI XhoI

~~~~~

TTGGCGTGGG CTGGATTGCG CAGCCGCCCTG GGAAAGCCCT CGAGTGGCTG
 AACCGCACCC GACCTAAGCG GTCGGCGGAC CCTTTCGGGA GCTCACCGAC

~~~~~

FIG. 5G

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

A L I D W D D D K Y Y S T S L K T  
 MluI ~ ~

GCTCTGATTG ATTGGGATGA TGATAAGTAT TATAGCACCA GCCTGAAAAC  
 CGAGACTAAC TAACCCTACT ACTATTCTATA ATATCGTGGT CGGACTTTTG

R L T I S K D T S K N Q V V L T  
 MluI NspV ~ ~ ~ ~ ~

GCGTCTGACC ATTAGCAAAG ATACTTCGAA AAATCAGGTG GTGCTGACTA  
 CGCAGACTGG TAATCGTTTC TATGAAGCTT TTTAGTCCAC CACGACTGAT

M T N M D P V D T A T Y Y C A R W  
 BssHII ~ ~ ~ ~ ~

TGACCAACAT GGACCCGGTG GATACGGCCA CCTATTATTG CGCGCGTTGG  
 ACTGGTTGTA CCTGGGCCAC CTATGCCGGT GGATAATAAC GCGGCAACC

FIG. 5H

APPROVED	D.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

G G D G F Y A M D Y W G Q G T L V

Styl  
 ~~~~~

GGGGCGATG GCTTTTATGC GATGATTAT TGGGGCCAAG GCACCTGGT
 CCGCCGCTAC CGAAATACG CTACCTAATA ACCCGGTC CGTGGGACCA

T V S S
 B1pI
 ~~~~~

GACGGTTAGC TCAG  
 CTGCCAATCG AGTC

**FIG. 51**

APPROVED O.G. FIG.		
BY	CLASS	SUBCLASS
DRAFTSMAN		

```

E V Q L V E S G G G L V Q P G G S
MfeI
~~~~~
GAAGTGCAAT TGGTGGAAG CGGCGGCGGC CTGGTGCAAC CGGGCGGCAG
CTTCACGTTA ACCACCTTC GCCGCCGCCG GACCACGTTG GCCCGCCGTC

L R L S C A A S G F T F S S Y A
BspEI
~~~~~
CCTGCGTCTG AGTGCGCGG CCTCCGGATT TACCTTTAGC AGCTATGCCA
GGACGCAGAC TCGACGCGCC GGAGGCCCTAA ATGGAATCG TCGATACGCT

M S W V R Q A P G K G L E W V S A
BstXI
~~~~~
XhoI
~~~~~
TGAGCTGGGT GCGCCAAGCC CCTGGGAAGG GTCTCGAGTG GGTGAGCGCG
ACTCGACCCA CGCGGTTCCG GGACCCTTCC CAGAGCTCAC CCACTCGCGC

```

**FIG. 5J**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

I S G S G G S T Y Y A D S V K G R  
 ATTAGCGGTA GCGCGGCAG CACCTATTAT GCGGATAGCG TGAAGGCCCG  
 TAATCGCCAT CGCCGCCGTC GTGGATAATA CGCCTATCGC ACTTCCCGGC

F T I S R D N S K N T L Y L Q M

PmlI NspV

~~~~~

TTTTACCATT TCACGTGATA ATTCGAAAA CACCCTGTAT CTGCAAATGA
 AAAATGGTAA AGTGCACTAT TAAGCTTTT GTGGGACATA GACGTTTACT

N S L R A E D T A V Y Y C A R W G

EagI BssHII

~~~~~

ACAGCCTGCG TCGGAAGAT ACGGCCGTGT ATTATTGCGC GCGTTGGGGC  
 TGTCGGACGC ACGCCTTCTA TGCCGGCACA TAATAACGCG CGCAACCCCG

**FIG. 5K**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

G D G G F Y A M D Y W G Q G T L V T

StyI

~~~~~

GGCGATGGCT TTTATGCGAT GGATTATTGG GGCCAAGGCA CCCTGGTGAC
 CCGCTACCGA AAATACGCTA CCTAATAACC CCGGTTCCGT GGGACCACTG

V S S

BlpI

~~~~~

GGTAGCTCA G  
 CCAATCGAGT C

**FIG. 5L**



APPROVED	O.G.FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

Q V Q L Q E S G P G L V K P S E T

MfeI

~~~~~

CAGGTGCAAT TGCAAGAAAG TGGTCCGGGC CTGGTGAAC CGAGCGAAAC
 GTCCACGTTA ACGTTCTTTC ACCAGGCCCG GACCACCTTG GCTCGCTTTG

L S L T C T V S G G S I S S Y Y

BspEI

~~~~~

CCTGAGCCTG ACCTGCACCG TTTCCGGAGG CAGCATTAGC AGCTATTATT  
 GGA CTCGGAC TGGACGTGGC AAAGGCCCTCC GTCGTAATCG TCGATAATAA

W S W I R Q P P G K G L E W I G Y

BstXI

XhoI

~~~~~

~~~~~

**FIG. 5M**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

```

GGAGCTGGAT TCGCCAGCCG CCTGGAAGG GTCTCGAGTG GATTGGCTAT
CCTCGACCTA AGCGGTCGGC GGACCCTTCC CAGAGCTCAC CTAACCGATA

I Y Y S G S T N Y N P S L K S R V
BstEII ~~~~

ATTATTATA GCGGCAGCAC CAACTATAAT CCGAGCCTGA AAAGCCGGGT
TAAATAATAT CGCCGTCGTG GTTGATATTA GGCTCGGACT TTTCGGCCCCA

T I S V D T S K N Q F S L K L S
BstEII ~~~~
NspV ~~~~~~

GACCATTAGC GTTGATACTT CGAAAACCA GTTAGCCTG AAAC TGAGCA
CTGGTAATCG CAACTATGAA GCTTTTGGT CAAATCGGAC TTGACTCGT

S V T A A D T A V Y Y C A R W G G
EagI ~~~~~~
BssHII ~~~~~~

```

**FIG. 5N**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

GGGTGACGGC GCGGATACG GCCGTGTATT ATTGCGCGCG TTGGGGCGGC  
 CGCACTGCCG CCGCCTATGC CGGCACATAA TAACGCGCGC AACCCCGCCG

D G F Y A M D Y W G Q G T L V T V

StyI

~~~~~

GATGGCTTTT ATGCGATGGA TTATTGGGGC CAAGGCACCC TGGTGACGGT
 CTACCGAAAA TACGCTACCT AATAACCCCG GTTCCGTGGG ACCACTGCCA

S S

BlpI

~~~~~

TAGCTCAG  
 ATCGAGTC

**FIG. 50**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

E V Q L V Q S G A E V K K P G E S  
 MfeI

~~~~~

GAAGTGCAAT TGGTTCAGAG CGGCGCGGAA GTGAAAAAAC CGGGCGAAAG
 CTCACGTTA ACCAAGTCTC GCCGCGCCTT CACTTTTTC GCCCGCTTTC

L K I S C K G S G Y S F T S Y W
 BspEI

~~~~~

CCTGAAAT AGCTGCAAG GTTCCGGATA TTCCTTTACG AGCTATTGGA  
 GGACTTTTAA TCGACGTTTC CAAGGCCCTAT AAGGAAATGC TCGATAACCT

I G W V R Q M P G K G L E W M G I  
 BstXI XhoI

~~~~~

TTGGCTGGGT GCGCCAGATG CCTGGGAAGG GTCTCGAGTG GATGGGCATT
 AACCGACCCA CGCGGTCTAC GGACCCTTCC CAGAGCTCAC CTACCCGTAA

FIG. 5P

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

I Y P G D S D T R Y S P S F Q G Q
 ATTATCCGG GCGATAGCGA TACCCGTTAT TCTCCGAGCT TTCAGGGCCA
 TAAATAGGCC CGCTATCGCT ATGGGCAATA AGAGGCTCGA AAGTCCCGGT

V T I S A D K S I S T A Y L Q W

BstEII

~~~~~

GGTGACCATT AGCGCGGATA AAAGCATTAG CACCGCGTAT CTTCAATGGA  
 CCACTGGTAA TCGCGCCTAT TTTCGTAATC GTGGCGCATA GAAGTTACCT

S S L K A S D T A M Y Y C A R W G

BssHII

~~~~~

GCAGCCTGAA AGCGAGCGAT ACGGCCATGT ATTATTGCGC GCGTTGGGC
 CGTCGGACTT TCGCTCGCTA TGCCGGTACA TAATAACGCG CGCAACCCCG

FIG.5Q

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

G D G F Y A M D Y W G Q G T L V T

StyI

~~~~~

GGCGATGGCT TTTATGCGAT GGATTATTGG GGCCAAGGCA CCCTGGTGAC  
 CCGCTACCGA AAATACGCTA CCTAATAACC CCGTTCCGT GGGACCACTG

V S S

BlpI

~~~~~

GGTAGCTCA G
 CCAATCGAGT C

FIG.5R

| | | |
|-----------|-----------|----------|
| APPROVED | D.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

Q V Q Q L Q Q S G P G L V K P S Q T
 MfeI
 ~~~~~  
 CAGGTGCAAT TGCAACAGTC TGGTCCGGGC CTGGTGAAC CGAGCCAAAC  
 GTCCACGTTA ACGTTGTCAG ACCAGGCCCG GACCACTTTG GCTCGGTTTG  
  
 L S L T C A I S G D S V S S N S  
 BspEI  
 ~~~~~  
 CCTGAGCCTG ACCTGTGCGA TTCCCGGAGA TAGCGTGAGC AGCAACAGCG
 GGA CTCGGAC TGGACACGCT AAAGGCCCTCT ATCGCACTCG TCGTTGTTCG

 A A W N W I R Q S P G R G L E W L
 BstXI XhoI
 ~~~~~  
 CGGCGTGGAA CTGGATTGCG CAGTCTCCTG GCGTGGCCT CGAGTGGCTG  
 GCCGCACCTT GACCTAAGCG GTCAGAGGAC CCGCACCGGA GCTCACCGAC

**FIG.5S**

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

```

G R T Y Y R S K W Y N D Y A V S V
GGCCGTACCT ATTATCGTAG CAAATGGTAT AACGATTATG CCGTGAGCGT
CCGGCATGGA TAATAGCATC GTTTACCATA TTGCTAATAC GCCACTCGCA

K S R I T I N P D T S K N Q F S
      BsaBI      NspV
      ~~~~~~      ~~~~~~
GAAAAGCCGG ATTACCATCA ACCCGGATAC TTCGAAAAC CAGTTTAGCC
CTTTTCGGCC TAATGGTAGT TGGCCCTATG AAGCTTTTGG GTCAAATCGG

L Q L N S V T P E D T A V Y Y C A
 EagI BssHII
      ~~~~~~      ~~~~~~
TGCAACTGAA CAGCGTGACC CCGGAAGATA CGGCCGTGTA TTATTGCGCG
ACGTTGACTT GTCGCACTGG GGCCTTCTAT GCCGGCACAT AATAACGCGC

```

**FIG. 5T**



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

R W G G D G F Y A M D Y W G Q G T  
 BSSHII  
 ~  
 CGTTGGGGCG GCGATGGCTT TTATGCGATG GATTATTGGG GCCAAGGCAC  
 GCAACCCCGC CGCTACCGAA AATACGCTAC CTAATAACCC CGTTCCGTG

Styl  
 ~~~~~

L V T V S S
 BlpI
 ~~~~~  
 CCTGGTGACG GTTAGCTCAG  
 GGACCACTGC CAATCGAGTC

**FIG. 5U**

**O1K1** 5' - GAATGCATACGCTGATATCCAGATGACCCAGAG -  
 CCCGTCTAGCCTGAGC -3'

**O1K2** 5' - CGCTCTGCAGGTAATGGTCACACGATCACCCAC -  
 GCTCGCGCTCAGGCTAGACGGGC -3'

**O1K3** 5' - GACCATTACCTGCAGAGCGAGCCAGGGCATTAG -  
 CAGCTATCTGGCGTGGTACCAGCAG -3'

**O1K4** 5' - CTTTGCAAGCTGCTGGCTGCATAAATTAATAGT -  
 TTCGGTGCTTTACCTGGTTTCTGCTGGTACCACGCCAG -3'

**O1K5** 5' - CAGCCAGCAGCTTGCAAAGCGGGGTCCCGTCCC -  
 GTTTTAGCGGCTCTGGATCCGGCACTGATTTTAC -3'

**O1K6** 5' - GATAATAGGTCGCAAAGTCTTCAGGTTGCAGGC -  
 TGCTAATGGTCAGGGTAAAATCAGTGCCGGATCC -3'

**O2K1** 5' - CGATATCGTGATGACCCAGAGCCCACTGAGCCT -  
 GCCAGTGACTCCGGGCGAGCC -3'

**O2K2** 5' - GCCGTTGCTATGCAGCAGGCTTTGGCTGCTTCT -  
 GCAGCTAATGCTCGCAGGCTCGCCCGGAGTCAC -3'

**O2K3** 5' - CTGCTGCATAGCAACGGCTATAACTATCTGGAT -  
 TGGTACCTTCAAAAACCAGGTCAAAGCCC -3'

**O2K4** 5' - CGATCCGGGACCCCACTGGCACGGTTGCTGCCC -  
 AGATAAATTAATAGCTGCGGGCTTTGACCTGGTTTTTG -3'

**O2K5** 5' - AGTGGGGTCCCGGATCGTTTTAGCGGCTCTGGA -  
 TCCGGCACCGATTTTACCCTGAAAATTAGCCGTGTG -3'

**O2K6** 5' - CCATGCAATAATACACGCCCACGTCTTCAGCTT -  
 CCACACGGCTAATTTTCAGGG -3'

**O3K1** 5' - GAATGCATACGCTGATATCGTGCTGACCCAGAG  
 CCCGG -3'

**O3K2** 5' - CGCTCTGCAGCTCAGGGTCGCACGTTGCCCCG -  
 AGACAGGCTCAGGGTCGCCGGGCTCTGGGTCAGC -3'

**O3K3** 5' - CCCTGAGCTGCAGAGCGAGCCAGAGCGTGAGCA -  
 GCAGCTATCTGGCGTGGTACCAG -3'

**FIG. 6A**

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	DRAFTSMAN	

**O3K4** 5' - GCACGGCTGCTCGCGCCATAAATTAATAGACGC -  
 GGTGCTTGACCTGGTTTCTGCTGGTACCACGCCAGATAG -3'

**O3K5** 5' - GCGCGAGCAGCCGTGCAACTGGGGTCCCCGGCGC -  
 GTTTTAGCGGCTCTGGATCCGGCACGGATTTTAC -3'

**O3K6** 5' - GATAATACACCGCAAAGTCTTCAGGTTCCAGGC -  
 TGCTAATGGTCAGGGTAAAATCCGTGCCGGATC -3'

**O4K1** 5' - GAATGCATACGCTGATATCGTGATGACCCAGAG -  
 CCCGGATAGCCTGGCG -3'

**O4K2** 5' - GCTTCTGCAGTTAATGGTCGCACGTTTCGCCCAG -  
 GCTACCGCCAGGCTATCCGGGC -3'

**O4K3** 5' - CGACCATTAAGTGCAGAAGCAGCCAGAGCGTGC -  
 TGTATAGCAGCAACAACAAAACTATCTGGCGTGGTACCAG  
 3'

**O4K4** 5' - GATGCCCAATAAATTAATAGTTTTCGGCGGCTGA -  
 CCTGGTTTCTGCTGGTACCACGCCAGATAG -3'

**O4K5** 5' - AAATATTAATTTATTGGGCATCCACCCGTGAA -  
 AGCGGGGTCCCCGGATCGTTTTAGCGGCTCTGGATCCGGCAC -  
 3'

**O4K6** 5' - GATAATACACCGCCACGTCTTCAGCTTGCAGGG -  
 ACGAAATGGTCAGGGTAAAATCAGTGCCGGATCCAGAGCC -  
 3'

**O1L1** 5' - GAATGCATACGCTCAGAGCGTGCTGACCCAGCC -  
 GCCTTCAGTGAGTGG -3'

**O1L2** 5' - CAATGTTGCTGCTGCTGCCGCTACACGAGATGG -  
 TCACACGCTGACCTGGTGCGCCACTCACTGAAGGCGGC -3'

**O1L3** 5' - GGCAGCAGCAGCAACATTGGCAGCAACTATGTG -  
 AGCTGGTACCAGCAGTTGCCCCGGGAC -3'

**O1L4** 5' - CCGGCACGCCTGAGGGACGCTGGTTGTTATCAT -  
 AAATCAGCAGTTTTCGGCGCCGTCCCCGGGCAACTGC -3

**O1L5** 5' - CCCTCAGGCGTGCCGGATCGTTTTAGCGGATCC -  
 AAAAGCGGCACCAGCGCGAGCCTTGCG -3'

**FIG.6B**

O.G. FIG.	SUBCLASS	
	CLASS	
APPROVED	BY	DRAFTSMAN

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	DRAFTSMAN	

**O1L6** 5' - CCGCTTCGTCTTCGCTTTGCAGGCCCGTAATCG-  
 CAAGGCTCGCGCTGG -3'

**O2L1** 5' - GAATGCATACGCTCAGAGCGCACTGACCCAGCC-  
 AGCTTCAGTGAGCGGC -3'

**O2L2** 5' - CGCTGCTAGTACCCGTACACGAGATGGTAATGC-  
 TCTGACCTGGTGAGCCGCTCACTGAAGCTGG -3'

**O2L3** 5' - GTACGGGTACTAGCAGCGATGTGGGCGGCTATA-  
 ACTATGTGAGCTGGTACCAGCAGCATCCCGG -3'

**O2L4** 5' - CGCCTGAGGGACGGTTGCTCACATCATAAATCA-  
 TCAGTTTCGGCGCCTTCCCGGGATGCTGCTGGTAC -3'

**O2L5** 5' - CAACCGTCCCTCAGGCGTGAGCAACCGTTTTAG-  
 CGGATCCAAAAGCGGCAACACCGCGAGCC -3'

**O2L6** 5' - CCGCTTCGTCTTCCGCTTGCAGGCCGCTAATGG-  
 TCAGGCTCGCGGTGTTGCCG -3'

**O3L1** 5' - GAATGCATACGCTAGCTATGAACTGACCCAGCC-  
 GCCTTCAGTGAGCG -3'

**O3L2** 5' - CGCCCAGCGCATCGCCGCTACACGAGATACGCG-  
 CGGTCTGACCTGGTGCAACGCTCACTGAAGGCGGC -3'

**O3L3** 5' - GCGGATGCGCTGGGCGATAAATACGCGAGCTGG-  
 TACCAGCAGAAACCCGGGCAGGCGC -3'

**O3L4** 5' - GCGTTCCGGGATGCCTGAGGGACGGTCAGAATC-  
 ATCATAAATCACCAGAACTGGCGCCTGCCCGGGTTTC -3'

**O3L5** 5' - CAGGCATCCCGGAACGCTTTAGCGGATCCAACA-  
 GCGGCAACACCGCGACCCTGACCATTAGCGG -3'

**O3L6** 5' - CCGCTTCGTCTTCCGCTGAGTGCCGCTAATGG-  
 TCAGGGTC -3'

**O1246H1** 5' - GCTCTTCACCCCTGTTACCAAAGCCCAG-  
 GTGCAATTG -3'

**O1AH2** 5' - GGCTTTGCAGCTCACTTTACGCTGCTGCCCGGT-  
 TTTTTCACCTCCGCGCCAGACTGAACCAATTGCACCTGGGC-  
 TTTG -3'

**FIG. 6C**

**O1AH3** 5' - GAAAGTGAGCTGCAAAGCCTCCGGAGGGCACTTT-  
 TAGCAGCTATGCGATTAGCTGGGTGCGCCAAGCCCCTGGGCAG  
 GGTC -3'

**O1AH4** 5' - GCCCTGAAACTTCTGCGCGTAGTTCGCCGTGCCA-  
 AAAATCGGAATAATGCCGCCCATCCACTCGAGACCCTGCCC-  
 AGGGGC -3'

**O1AH5** 5' - GCGCAGAAGTTTCAGGGCCGGGTGACCATTACC-  
 GCGGATGAAAGCACCAGCACCGCGTATATGGAAGTGAAGCAGCC  
 TGCG -3'

**O1ABH6** 5' - GCGCGCAATAATACAGGCCGTATCTTCGCT-  
 ACGCAGGCTGCTCAGTTCC -3'

**O1BH2** 5' - GGCTTTGCAGCTCACTTTTCACGCTCGCGCCCGGT-  
 TTTTTCCTTCCGCGCCGCTCTGAACCAATTGCACCTGGGC-  
 TTTG -3'

**O1BH3** 5' - GAAAGTGAGCTGCAAAGCCTCCGGATATACCTT-  
 TACCAGCTATTATATGCACTGGGTCCGCCAAGCCCCTGGGCAG  
 GGTC -3'

**O1BH4** 5' - GCCCTGAAACTTCTGCGCGTAGTTCGTGCCGCC-  
 GCTATTCGGGTAAATCCAGCCCATCCACTCGAGACCCTGCCCCA  
 GGGGC -3'

**O1BH5** 5' - GCGCAGAAGTTTCAGGGCCGGGTGACCATGACC-  
 CGTGATACCAGCATTAGCACCGCGTATATGGAAGTGAAGCAGCC  
 TGCG -3'

**O2H2** 5' - GGTACAGGTCAGGGTCAGGGTTTGGGTGCGTTT-  
 CACCAGGGCCGGGCGCTTTTCTTTCAATTGCACCTGGGCTTTG  
 -3'

**O2H3** 5' - CTGACCCTGACCTGTACCTTTTCCGGATTAGC-  
 CTGTCCACGTCTGGCGTTGGCGTGGGCTGGATTGCGCCAGCCGC  
 CTGGGAAAG -3

**O2H4** 5' - GCGTTTTTCAGGCTGGTGCTATAATACTTATCAT-  
 CATCCCAATCAATCAGAGCCAGCCACTCGAGGGCTTTCCCAGG  
 CGGCTGG -3'

**FIG. 6D**

APPROVED	O.G. FIG.	
	BY	CLASS SUBCLASS
DRAFTSMAN		

**O2H5** 5' - GCACCAGCCTGAAAACGCGTCTGACCATTAGCA-  
 AAGATACTTCGAAAAATCAGGTGGTGCTGACTATGACCAACAT  
 GG -3'

**O2H6** 5' - GCGCGCAATAATAGGTGGCCGTATCCACCGGGT-  
 CCATGTTGGTCATAGTCAGC -3'

**O3H1** 5' - CGAAGTGCAATTGGTGGAAAGCGGCGGCGGCCT-  
 GGTGCAACCGGGGCGGCAG -3'

**O3H2** 5' - CATAGCTGCTAAAGGTAAATCCGGAGGCCGCGC-  
 AGCTCAGACGCAGGCTGCCGCCCCGGTTGCAC -3'

**O3H3** 5' - GATTTACCTTTAGCAGCTATGCGATGAGCTGGG-  
 TGCGCCAAGCCCCCTGGGAAGGGTCTCGAGTGGGTGAG -3'

**O3H4** 5' - GGCCTTTCACGCTATCCGCATAATAGGTGCTGC-  
 CGCCGCTACCGCTAATCGCGCTCACCCACTCGAGACCC -3'

**O3H5** 5' - CGGATAGCGTGAAAGGCCGTTTTTACCATTTTAC-  
 GTGATAATTCGAAAAACACCCTGTATCTGCAAATGAACAG-3'

**O3H6** 5' - CACGCGCGCAATAACACGGCCGTATCTTCCG-  
 CACGCAGGCTGTTTCATTTGCAGATACAGG -3'

**O4H2** 5' - GGTCAGGCTCAGGGTTTCGCTCGGTTTTCACCAG-  
 GCCCCGACCACTTTCTTGCAATTGCACCTGGGCTTTG -3'

**O4H3** 5' - GAAACCCTGAGCCTGACCTGCACCGTTTCCGGAGG-  
 CAGCATTAGCAGCTATTATTGGAGCTGGATTTCGCCAGCCGC  
 -3'

**O4H4** 5' - GATTATAGTTGGTGCTGCCGCTATAATAAATAT-  
 AGCCAATCCACTCGAGACCCTTCCCAGGCGGCTGGCGAATCCA  
 G -3'

**O4H5** 5' - CGGCAGCACCAACTATAATCCGAGCCTGAAAAG-  
 CCGGGTGACCATTAGCGTTGATACTTCGAAAAACCAGTTTAGC  
 CTG -3'

**O4H6** 5' - GCGCGCAATAATACACGGCCGTATCCGCCGCCG-  
 TCACGCTGCTCAGTTTCAGGCTAAACTGGTTTTTCG -3'

**FIG. 6E**

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	DRAFTSMAN	

**O5H1** 5' - GCTCTTCACCCCTGTTACCAAAGCCGAAGTGCA  
 ATTG -3'

**O5H2** 5' - CCTTTGCAGCTAATTTTCAGGCTTTCGCCCCGGT-  
 TTTTTCACCTCCGCGCCGCTCTGAACCAATTGCACCTTCGGCTT  
 TGG -3'

**O5H3** 5' - CCTGAAAATTAGCTGCAAAGGTTCCGGATATTC-  
 CTTTACGAGCTATTGGATTGGCTGGGTGCGCCAGATGCCTGG  
 -3'

**O5H4** 5' - CGGAGAATAACGGGTATCGCTATCGCCCCGGATA-  
 AATAATGCCCATCCACTCGAGACCCTTCCCAGGCATCTGGCGC  
 AC -3'

**O5H5** 5' - CGATACCCGTTATTCTCCGAGCTTTCAGGGCCA-  
 GGTGACCATTAGCGCGGATAAAAGCATTAGCACCGCGTATCTT  
 C -3'

**O5H6** 5' - GCGCGCAATAATACATGGCCGTATCGCTCGCTT-  
 TCAGGCTGCTCCATTGAAGATACGCGGTGCTAATG -3'

**O6H2** 5' - GAAATCGCACAGGTCAGGCTCAGGGTTTGGCTC-  
 GGTTTCACCAGGCCCGGACCAGACTGTTGCAATTGCACCTGG-  
 GCTTTG -3'

**O6H3** 5' - GCCTGACCTGTGCGATTTCCGGAGATAGCGTGA-  
 GCAGCAACAGCGCGGCGTGGAAGTGGATTCGCCAGTCTCCTGG  
 GCG -3'

**O6H4** 5' - CACCGCATAATCGTTATACCATTTGCTACGATA-  
 ATAGGTACGGCCCAGCCACTCGAGGCCACGCCCAGGAGACTG  
 GCG -3'

**O6H5** 5' - GGTATAACGATTATGCGGTGAGCGTGAAAAGCC-  
 GGATTACCATCAACCCGGATACTTCGAAAAACCAGTTTAGCCT  
 GC -3'

**O6H6** 5' - GCGCGCAATAATACACGGCCGTATCTTCCGGGG-  
 TCACGCTGTTTCAGTTGCAGGCTAAACTGGTTTTTC -3'

**OCLK1** 5' - GGCTGAAGACGTGGGCGTGTATTATTGCCAGCA-  
 GCATTATACCACCCCGCCGACCTTTGGCCAGGGTAC -3'

**FIG. 6F**

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

**OCLK2** 5' - GCGAAAAATAAACACGCTCGGAGCAGCCACCG -  
 TACGTTTAATTTCAACTTTCGTACCCTGGCCAAAGGTC -3'

**OCLK3** 5' - GAGCGTGTTTATTTTTCCGCCGAGCGATGAACA -  
 ACTGAAAAGCGGCACGGCGAGCGTGGTGTGCCTGCTG -3'

**OCLK4** 5' - CAGCGCGTTGTCTACTTTCCACTGAACTTTCGC -  
 TTCACGCGGATAAAAGTTGTTTCAGCAGGCACACCACGC -3'

**OCLK5** 5' - GAAAGTAGACAACGCGCTGCAAAGCGGCAACAG -  
 CCAGGAAAGCGTGACCGAACAGGATAGCAAAGATAG -3'

**OCLK6** 5' - GTTTTTTCATAATCCGCTTTGCTCAGGGTCAGGG -  
 TGCTGCTCAGAGAATAGGTGCTATCTTTGCTATCCTGTTCG -  
 3'

**OCLK7** 5' - GCAAAGCGGATTATGAAAAACATAAAGTGTATG -  
 CGTGCGAAGTGACCCATCAAGGTCTGAGCAGCCCGGTG -3'

**OCLK8** 5' - GGCATGCTTATCAGGCCTCGCCACGATTAAAAG -  
 ATTTAGTCACCGGGCTGCTCAGAC -3'

**OCH1** 5' - GGCGTCTAGAGGCCAAGGCACCCTGGTGACGGT -  
 TAGCTCAGCGTCGAC -3'

**OCH2** 5' - GTGCTTTTGTGCTGCTCGGAGCCAGCGGAAACACG -  
 CTTGGACCTTTGGTCGACGCTGAGCTAACC -3'

**OCH3** 5' - CTCCGAGCAGCAAAAGCACCAGCGGCGGCACGG -  
 CTGCCCTGGGCTGCCTGGTTAAAGATTATTTCC -3'

**OCH4** 5' - CTGGTCAGCGCCCCGCTGTTCCAGCTCACGGTG -  
 ACTGGTTCCGGGAAATAATCTTTAACCAGGCA -3'

**OCH5** 5' - AGCGGGGCGCTGACCAGCGGCGTGCATACCTTT -  
 CCGGCGGTGCTGCAAAGCAGCGGCCTG -3'

**OCH6** 5' - GTGCCTAAGCTGCTGCTCGGCACGGTCACAACG -  
 CTGCTCAGGCTATACAGGCCGCTGCTTTGCAG -3'

**OCH7** 5' - GAGCAGCAGCTTAGGCACTCAGACCTATATTTG -  
 CAACGTGAACCATAAACCGAGCAACACC -3'

**OCH8** 5' - GCGCGAATTCGCTTTTTCGGTTCCACTTTTTTAT -  
 CCACTTTGGTGTGCTCGGTTTATGG -3'

**FIG. 6G**

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	DRAFTSMAN	



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

V A A P S V F I F P P S D E Q

BsiWI

~~~~~

CGTACGGTGG CTGCTCCGAG CGTGTTTATT TTTCCGCCGA GCGATGAACA

GCATGCCACC GACGAGGCTC GCACAAATAA AAAGCGGGCT CGTACTTGT

L K S G T A S V V C L L N N F Y

ACTGAAAGC GGCACGGCGA GCGTGGTGTG CCTGCTGAAC AACTTTTATC

TGACTTTTCG CCGTGCCGCT CGCACCCACAC GGACGACTTG TTGAAAAATAG

P R E A K V Q W K V D N A L Q S G

CGCGTGAAGC GAAAGTTCAG TGGAAAGTAG ACAACGCGCT GCAAAGCGGC

GCGCACTTCG CTTTCAAGTC ACCTTTCATC TGTTGCGCGA CGTTTCGCCG

N S Q E S V T E Q D S K D S T Y S

AACAGCCAGG AAAGCGTGAC CGAACAGGAT AGCAAAGATA GCACCTATTC

TTGTCGGTCC TTTCGCACTG GCTTGTCCTA TCGTTTCTAT CGTGGATAAG

FIG. 7A

| | |
|-----------|----------|
| APPROVED | O.G.FIG. |
| BY | CLASS |
| DRAFTSMAN | SUBCLASS |

L S S T L T L S K A D Y E K H K
 TCTGAGCAGC ACCCTGACCC TGAGCAAAGC GGATTATGAA AACATATAAG
 AGACTCGTCG TGGGACTGGG ACTCGTTTCG CCTAATACTT TTTGTATTTC

V Y A C E V T H Q G L S S P V T K
 TGTATGCGTG CGAAGTGACC CATCAAGGTC TGAGCAGCCC GTGACTAAA
 ACATACGCAC GCTTCACTGG GTAGTTCCAG ACTCGTCGGG CCACTGATT

S F N R G E A \*
 StuI SphI
 ~~~~~ ~~~~~  
 TCTTTTAATC GTGGCGAGGC CTGATAAGCA TGC  
 AGAAAATTAG CACCGCTCCG GACTATTCGT ACG

**FIG. 7B**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

A S T K G P S V F P L A P S S

BlpI Sali

~~~~~

GCTCAGCGTC GACCAAAGGT CCAAGCGTGT TTCCGCTGGC TCCGAGCAGC
 CGAGTCGCAG CTGGTTTCCA GGTTTCGCACA AAGGCGACCG AGGCTCGTCG

K S T S G G T A A L G C L V K D Y

AAAAGCACCA GCGCGGCAC GGCTGCCCTG GGCTGCCCTGG TTAAGATTA
 TTTTCGTGGT CGCCGCCGTG CCGACGGGAC CCGACGGACC AATTCTAAT

F P E P V T V S W N S G A L T S

TTTCCCGGAA CCAGTCACCG TGAGCTGGAA CAGCGGGCGG CTGACCAGCG
 AAAGGGCCTT GGTCAGTGGC ACTCGACCTT GTCGCCCCCG GACTGGTCGC

G V H T F P A V L Q S S G L Y S L

GCGTGCATAC CTTTCCGGCG GTGCTGCAAA GCAGCGGCCT GTATAGCCTG
 CGCACGTATG GAAAGGCCCG CACGACGTTT CGTCGCCCCGA CATATCGGAC

FIG. 7C

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

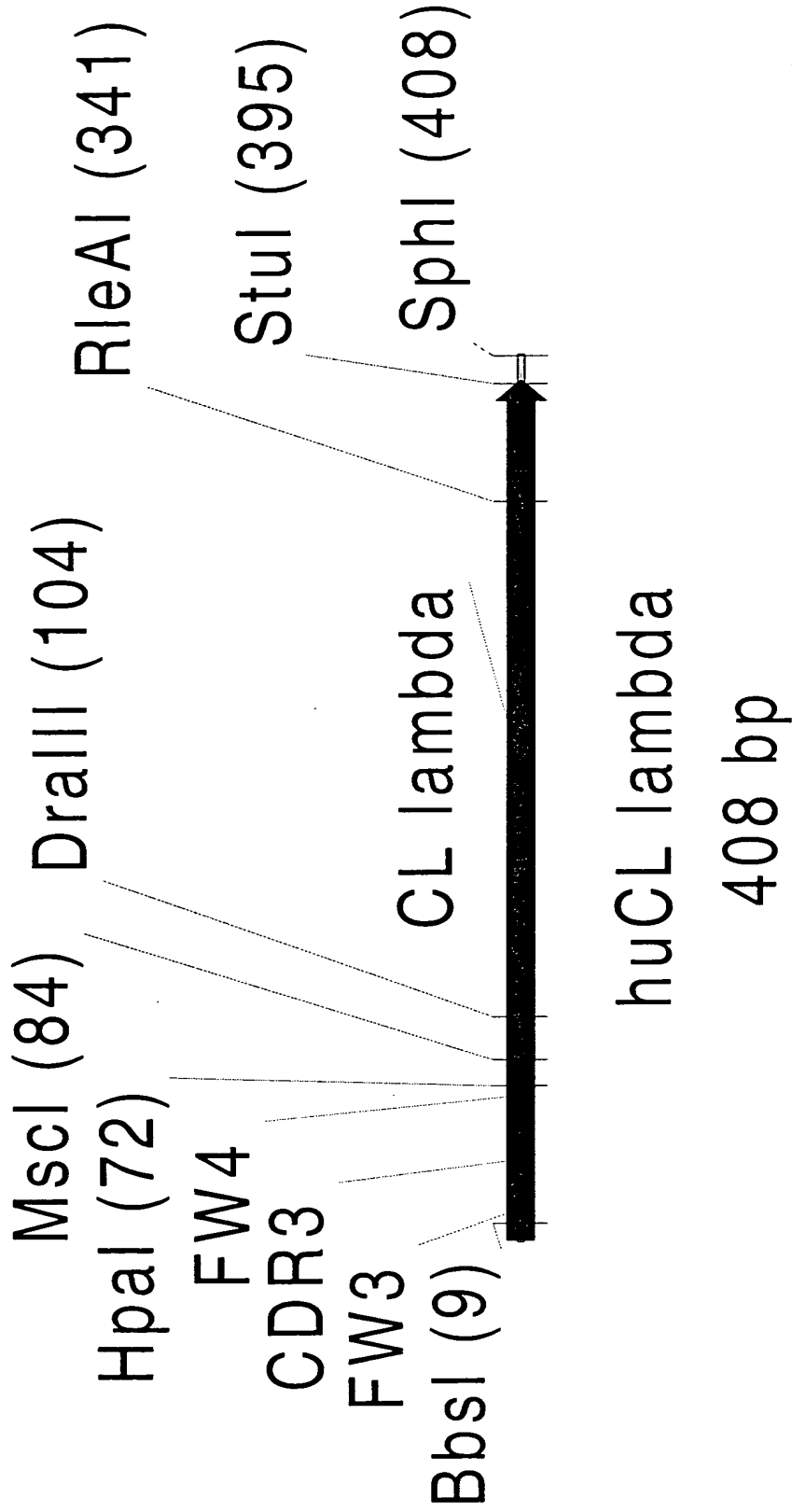
S S V V T V P S S S L G T Q T Y I
 AGCAGCGTTG TGACCGTGCC GAGCAGCAGC TTAGGCACTC AGACCTATAT
 TCGTCGCAAC ACTGGCACGG CTCGTCGTCG AATCCGTGAG TCTGGATATA

C N V N H K P S N T K V D K K V
 TTGCAACGTG AACCATAAAC CGAGCAACAC CAAAGTGGAT AAAAAAGTGG
 AACGTTGCAC TTGGTATTG GCTCGTTGTG GTTTCACCTA TTTTTCACC

E P K S E F \*
 EcoRI HindIII
 ~~~~~ ~~~~~  
 AACCGAAAAG CGAATTCTGA TAAGCTT  
 TTGGCTTTC GCTTAAGACT ATTCGAA

**FIG. 7D**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



**FIG. 7E**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | D.G. F18. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|        |                                                          |       |        |
|--------|----------------------------------------------------------|-------|--------|
| BbsI   |                                                          |       |        |
|        | ~~~~~                                                    |       |        |
| 1      | GAAGACGAAG CGGATTATTA TTGCCAGCAG CATTATACCA CCCC GCCCTGT |       |        |
|        | CTTCTGCTTC GCCTAATAAT AACGGTCGTC GTAATATGGT GGGCGG GACA  |       |        |
| HpaI   |                                                          | MscI  | DraIII |
|        | ~~~~~                                                    | ~~~~~ | ~~~~~  |
| 51     | GTTTGGCGGC GGCACGAAGT TAACCGTTCT TGGCCAGCCG AAAGCCGCAC   |       |        |
|        | CAAACCGCCG CCGTGCTTCA ATTGGCAAGA ACCGGTCGGC TTTCGGCGTG   |       |        |
| DraIII |                                                          |       |        |
|        | ~~~~~                                                    |       |        |
| 101    | CGAGTGTGAC GCTGTTTCCG CCGAGCAGCG AAGAATTGCA GGCGAACAAA   |       |        |
|        | GCTCACACTG CGACAAAGGC GGCTCGTCGC TTCCTTAACGT CCGCTTGTTT  |       |        |
| 151    | GGGACCCTGG TGTGCCCTGAT TAGCGACTTT TATCCGGGAG CCGTGACAGT  |       |        |
|        | CGCTGGGACC ACACGGACTA ATCGCTGAAA ATAGGCCCTC GGCACGTCA    |       |        |

FIG. 7F

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | D.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

201 GGCCCTGGAAG GCAGATAGCA GCCCCGTCAG GCGGGGAGTG GAGACCACCA  
CCGGACCTTC CGTCTATCGT CGGGGCAGTT CCGCCCTCAC CTCTGGTGGT

251 CACCCCTCCAA ACAAGCAAC AACAAGTACG CGGCCAGCAG CTATCTGAGC  
GTGGGAGGTT TGTTCGTTG TTGTTCAATG GCCGGTCGTC GATAGACTCG

RleAI

~~~~~

301 CTGACGCCCTG AGCAGTGGAA GTCCCACAGA AGCTACAGCT GCCAGGTCAC
GACTGCCGGAC TCGTCACCTT CAGGGTGTCT TCGATGTCTGA CGGTCCAGTG

StuI

~~~~~

FIG. 7G

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

351 GCATGAGGGG AGCACCGTGG AAAAAACCGT TGCGCCGACT GAGGCCGTGAT  
CGTACTCCCC TCGTGGCACC TTTTGTGGCA ACGCGGCTGA CTCCGGGACTA

SphI

~~~~~

401 AAGCATGC
TTCGTACG

FIG. 7H

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

M24: assembly PCR

M24-A:

GAAGACAAGCGGATTATTATTTGCCAGCAGCATTATACCAACCCCGCCTGTGTTTGGCGGCG-
 GCACGAAGTTAACCGTTC

M24-B:

CAATTCTTCGCTCGCGGGAACAGCGTCACACTCGGTGCGGCTTTCGGCTGGCCAA-
 GAACGGTTAACTTCGTGCCGC

M24-C:

CGCCGAGCAGCGAAGAATTGCAGGCGAACAAAGCGACCCCTGGTGTGCCCTGATTAGCGACT-
 TTTATCCGGGAGCCGTGACA

FIG. 71

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

M24-D:

TGTTTGGAGGGTGTGGTCTCCACTCCCGCCTTGACGGGGCTGCTATCTGCCTTCCAG-
GCCACTGTACGGCTCCCGG

M24-E:

CCACACCCCTCCAAACAAAGCAACAAGTACGGGCCAGCAGCTATCTGAGCCTGACGC-
CTGAGCAGTGGAAAGTCCCCACAGAAGCTACAGCTG

M24-F:

GCATGCTTATCAGGCCCTCAGTCGGCGCAACGGTTTTTCCACGGTGCTCCCCCTCATGCCGT-
GACCTGGCAGCTGTAGCTTC

FIG. 7J

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

M K Q S T I A L A L L P L L F T P
 Sapi
 ~~~~~

ATGAAACAAA GCACTATTGC ACTGGCACTC TTACCGTTGC TCTTCACCCC  
 TACTTTGTTT CGTGATAACG TGACCGTGAG AATGGCAACG AGAAGTGGGG

V T K A D Y K D E V Q L V E S G  
 MfeI  
 ~~~~~

TGTTACCAA GCCGACTACA AAGATGAAGT GCAATTGGTG GAAAGCGCGG
 ACAATGGTTT CGGCTGATGT TTCTACTTCA CGTTAACCAC CTTTCGCCCG

G G L V Q P G G S L R L S C A A S
 BspEI
 ~~~~~

GCGGCCTGGT GCAACCGGGC GGCAGCCTGC GTCTGAGCTG CGCGGCCTCC  
 CGCCGGACCA CGTTGGCCCG CCGTCGGACG CAGACTCGAC GCGCCGGAGG

G F T F S S Y A M S W V R Q A P G  
 BspEI  
 ~~~~~  
 BstXI
 ~~~~~

GGATTACCT TTAGCAGCTA TGGATGAGC TGGGTGCGCC AAGCCCCTGG

CCTAAATGGA AATCGTCGAT ACGCTACTCG ACCCACGCGG TTCGGGGACC

**FIG. 8A**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

K G L E W V S A I S G S G S T  
 XhoI  
 ~~~~~  
 GAAGGGTCTC GAGTGGGTGA GCGCGATTAG CCGTAGCGGC GGCAGCACCT
 CTTCCAGAG CTCACCCACT CCGCCTAATC GCCATCGCCG CCGTCGTGGA
 Y Y A D S V K G R F T I S R D N S
 PmlI NspV
 ~~~~~  
 ATTATGCGGA TAGCGTGAAA GGCCGTTTTC CCATTTCACG TGATAATTTCG  
 TAATACGCCT ATCGCACTTT CCGGCAAAAT GGTAAGTGC ACTATTAAGC  
 K N T L Y L Q M N S L R A E D T A  
 NspV EagI  
 ~~~~~  
 AAAAACACCC TGTATCTGCA AATGAACAGC CTGCGTGCCG AAGATACGGC
 TTTTGTGGG ACATAGACGT TTAAGTGTGC GACGCACGCC TTCTATGCCG
 V Y Y C A R W G G D G F Y A M D
 EagI BssHII
 ~~~~~  
 CGTGATTAT TCGCGCGGT GGGCGGCGA TGGCTTTTAT GCGATGGATT

FIG. 8B

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | D.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

GCACATAATAACGCGCGCAA CCCCGCCGCT ACCGAAATA CGTACCTAA  
 Y W G Q G T L V T V S S A G G G S  
 StyI  
 ~~~~~  
 ATTTGGGGCCA AGCACCCCTG GTGACGGTTA GCTCAGCGGG TGGCGGTTCT
 TAACCCCGGT TCCGTGGGAC CACTGCCAAT CGAGTCGCC ACCGCCAAGA
 BlpI
 ~~~~~  
 G G G G S G G G G G G G S D I  
 EcoRV  
 ~~~~~  
 GGCGGCGGTG GGAGCGGTGG CGGTGGTTCT GGCGGTGGTG GTTCCGATAT
 CCGCCGCCAC CCTCGCCACC GCCACCAAGA CCGCCACCAC CAAGGCTATA
 V M T Q S P L S L P V T P G E P
 EcoRV
 BanII
 ~~~~~  
 CGTGATGACC CAGAGCCAC TGAGCCTGCC AGTGACTCCG GGCGAGCCTG  
 GCACTACTGG GTCTCGGGTG ACTCGGACGG TCACTGAGGC CCGCTCGGAC  
 PstI  
 ~~~~~  
 A S I S C R S S Q S L L H S N G Y
 CGAGCATTAG CTGCAGAAGC AGCCAAAGCC TGCTGCATAG CAACGGCTAT
 GTCGTAATC GACGTCTTCG TCGGTTTCGG ACGACGTATC GTTGCCGATA

FIG. 8C

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

N Y L D W Y L Q K P G Q S P Q L L
 KpnI SexAI AseI
                     ~~~~~                    ~~~~~                    ~~~~~  
 AACTATCTGG ATTGGTACCT TCAAAAACCA GTCAAAGCC CGCAGCTATT  
 TTGATAGACC TAACCATGGA AGTTTGTGT CCAGTTTCGG GCGTCGATAA  
  
 I Y L G S N R A S G V P D R F S  
                     AseI                    Eco0109I  
                     ~~~~~                    ~~~~~  
 AATTATCTG GGCAGCAACC GTGCCAGTGG GTCCCAGGAT CGTTTTCGCG
 TTAATAGAC CCGTCGTTGG CACGGTCACC CCAGGGCCTA GCAAATCGC

 G S G S G T D F T L K I S R V E A
 BamHI
                     ~~~~~  
 GCTCTGGATC CGGCACCGAT TTTACCCCTGA AAATTAGCCG TGTGGAAGCT  
 CGAGACCTAG GCCGTGGCTA AAATGGGACT TTTAATCGGC ACACCTTCGA  
  
 E D V G V Y Y C Q Q H Y T T P P T  
                     BbsI  
                     ~~~~~  
 GAAGACGTGG GCGTGTATTA TTGCCAGCAG CATTATACCA CCCC GCCGAC
 CTTCTGCACC CGCACATAAT AACGGTCGTC GTAATATGGT GGGGCGGCTG

FIG. 8D

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

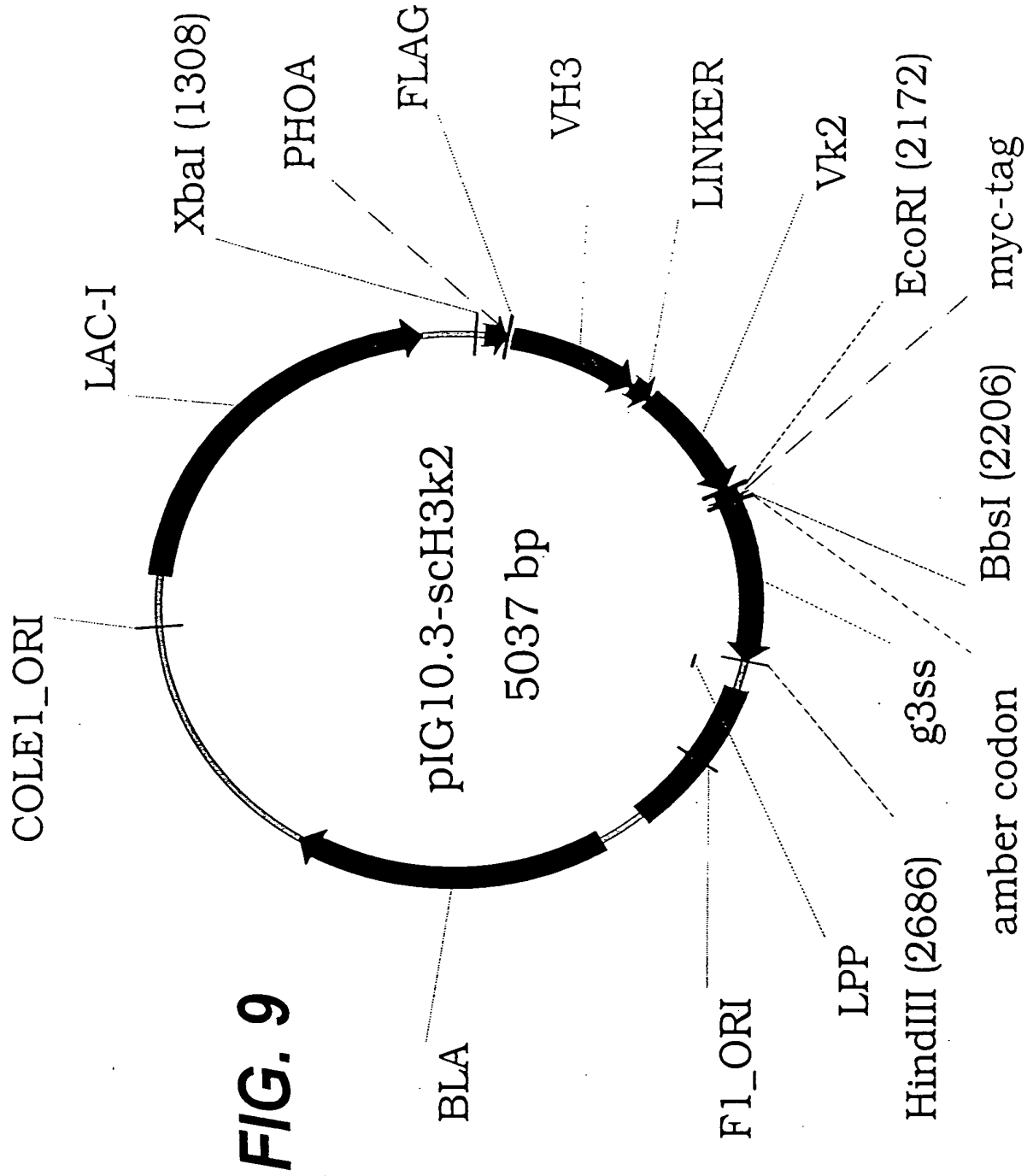
```

F G Q G T K V E I K R T E F
  MSCI
  ~~~~~
CTTTGGCCAG GGTACGAAAG TTGAAATTAA ACGTACGGAA TTC
GAAACCGGTC CCATGCTTTC AACTTTAATT TGCATGCCTT AAG
  BsiWI EcoRI
  ~~~~~

```

FIG. 8E

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



APPROVED BY DRAFTSMAN
O.G. FIG. CLASS SUBCLASS

A	103	W	W	W	W	W	W	W	W	W	W	W	W	W
	102	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	101	D	D	D	D	D	D	D	D	D	D	D	D	D
	100F	N	-	-	-	-	-	-	-	-	-	-	-	-
	100D	-	-	-	-	-	-	-	-	-	-	-	-	-
	100C	-	-	-	-	-	-	-	-	-	-	-	-	-
	100B	A	-	-	-	-	-	-	-	-	-	-	-	-
	100A	Y	-	-	-	-	-	-	-	-	-	-	-	-
	100	F	Y	H	H	R	Y	P	-	S	K	A	D	M
	99	G	N	W	Y	A	G	Q	R	N	S	A	Y	W
	98	D	M	E	L	K	<u>I</u>	A	T	R	D	F	Q	E
	97	G	K	T	E	L	T	E	I	N	G	T	P	S
	96	G	G	R	R	F	N	N	A	Y	V	K	A	Q
B	95	W	F	H	V	K	W	I	T	W	S	S	V	M
	94	R	R	R	R	R	R	R	R	R	R	R	R	R
	93	A	A	A	A	A	A	A	A	A	A	A	A	A
	92	C	C	C	C	C	C	C	C	C	C	C	C	C

FIG. 10A

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

C
C C C C C C C C C C C C C C
A A A A A A A A A A A A A A
R R R R R R R R R R R R R R
Y M K T Y \* R M K S Y
F A N Q P G N K G W A
V L Q S Y S P P S T G
H R M F R G W M E N T
F A V W S S N L F D T
L S F E N E V N L K F
Y G H Q F H N R E P K
T K A Q F W Y D T N Q
M Y R K M S L G D F G
V I K V P I H T V I P
M M F M M F F M M M
D D D D D D D D D D
V V V Y V V V Y V Y
W W W W W W W W W W W W

FIG. 10B

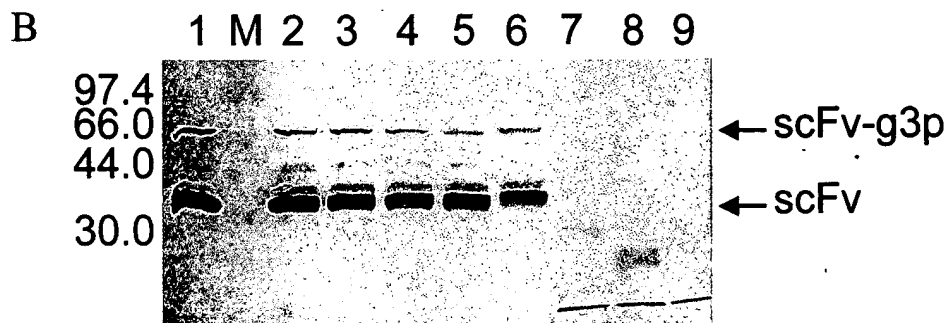
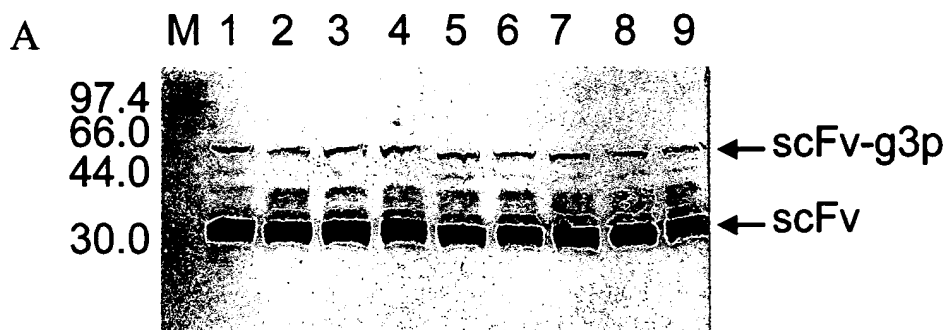


FIG. 11

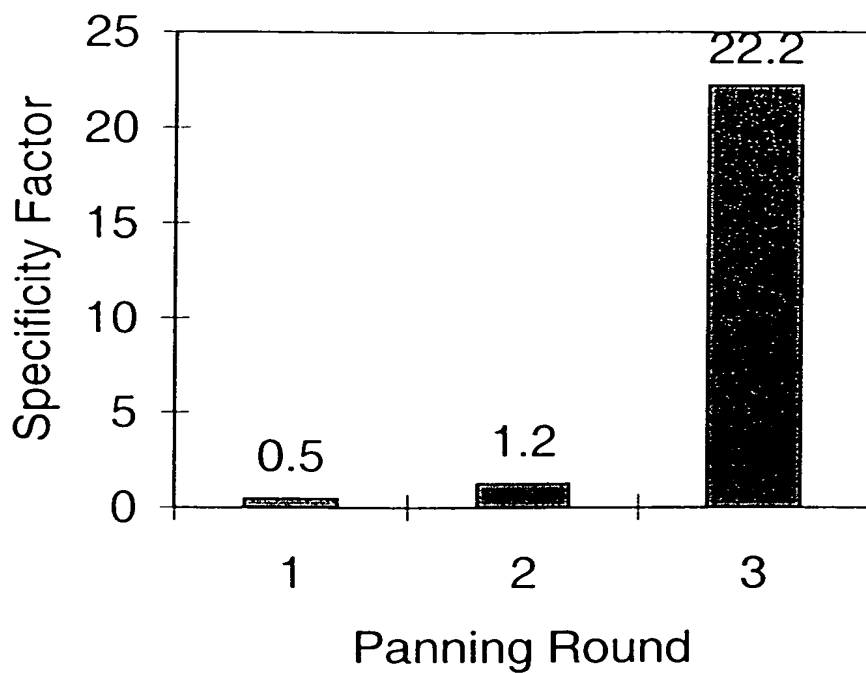


FIG. 12

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

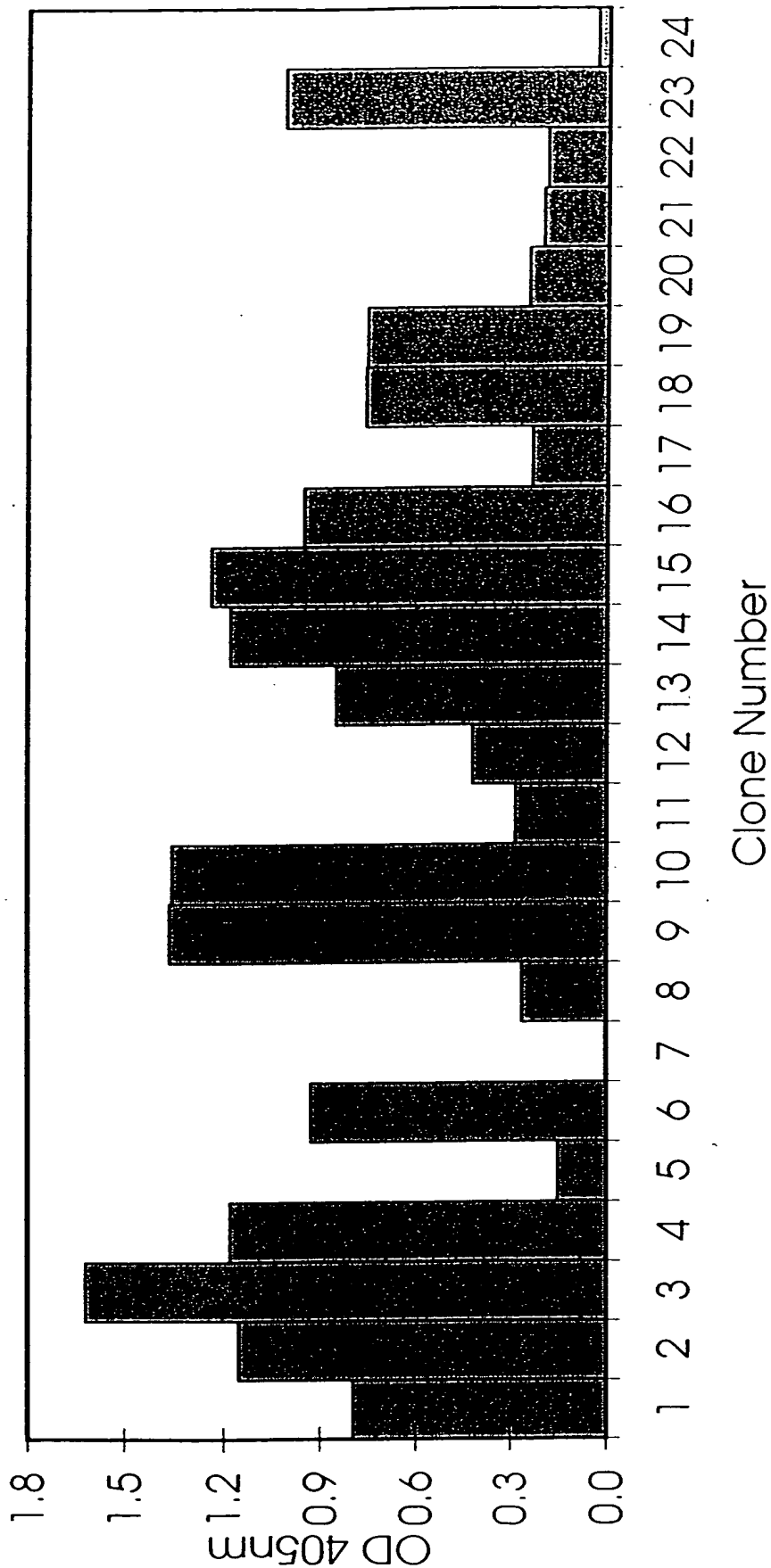


FIG. 13

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY		
DRAFTSMAN		

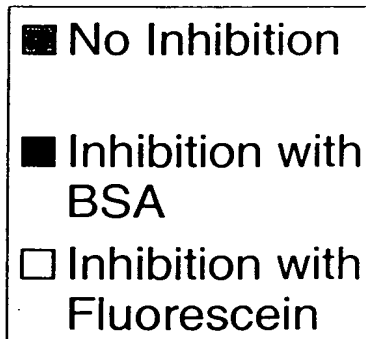
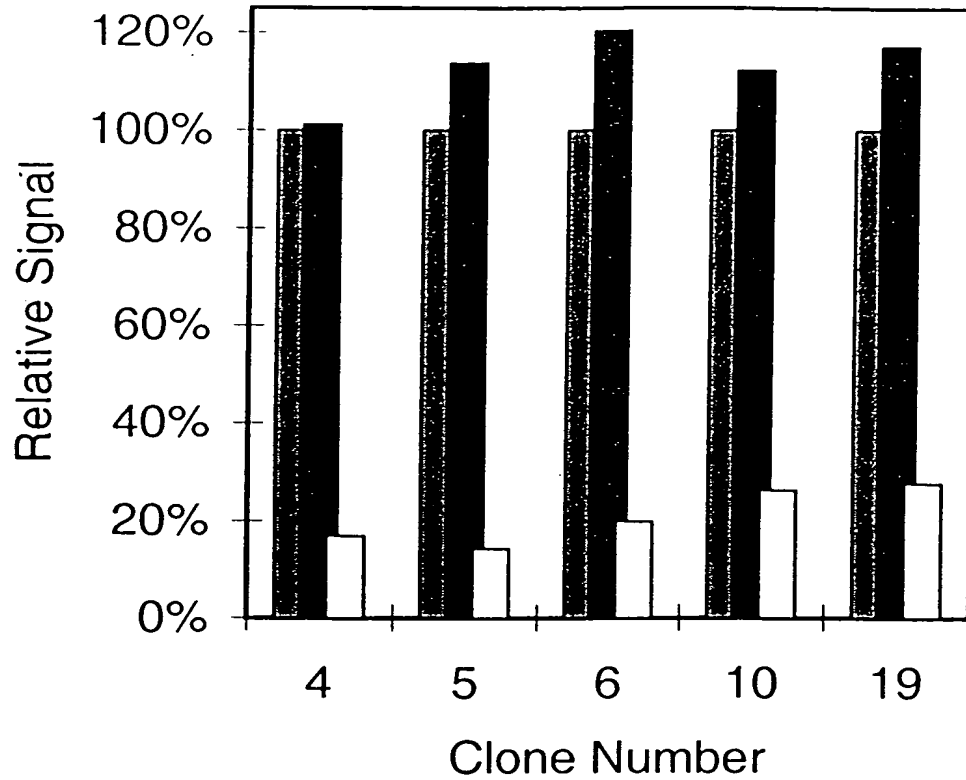


FIG. 14

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

Frequency	103	102	101	100E	100D	100C	100B	100A	100	99	98	97	96	95	94	93	92
1	W	V	D	F	R	F	R	P	N	Q	M	M	R	K	R	A	C
3	W	V	D	F	R	R	M	K	R	K	Q	K	S	R	R	A	C
1	W	V	D	F	R	H	R	L	H	K	K	G	N	R	R	A	C
2	W	V	D	F	R	R	K	I	R	K	R	M	K	R	R	A	C
1	W	V	D	F	S	N	K	W	K	M	I	K	R	Y	R	A	C
1	W	V	D	F	Q	D	F	S	P	H	V	E	I	L	R	A	C
1	W	V	D	M	V	A	K	K	L	F	M	P	K	R	R	A	C
2	W	Y	D	F	K	V	T	S	Y	R	H	F	K	R	R	A	C
1	W	Y	D	F	Y	K	V	S	S	R	M	T	K	R	R	A	C
1	W	V	D	F	R	D	M	R	S	W	S	R	K	R	R	A	C
1	W	V	D	F	R	N	M	R	R	R	R	P	N	R	R	A	C
1	W	V	D	F	R	P	R	A	G	K	K	K	G	K	R	A	C
1	W	V	D	F	I	K	R	K	F	K	H	V	M	R	R	A	C
1	W	V	D	F	Q	K	R	P	Y	T	I	H	K	R	R	A	C
1	W	V	D	F	R	A	F	S	R	Q	K	L	W	R	R	A	C
1	W	Y	D	F	R	S	F	T	Y	Q	K	L	K	K	R	A	C

FIG. 15

APPROVED	O.G. FIG.	
	BY	CLASS SUBCLASS
DRAFTSMAN		

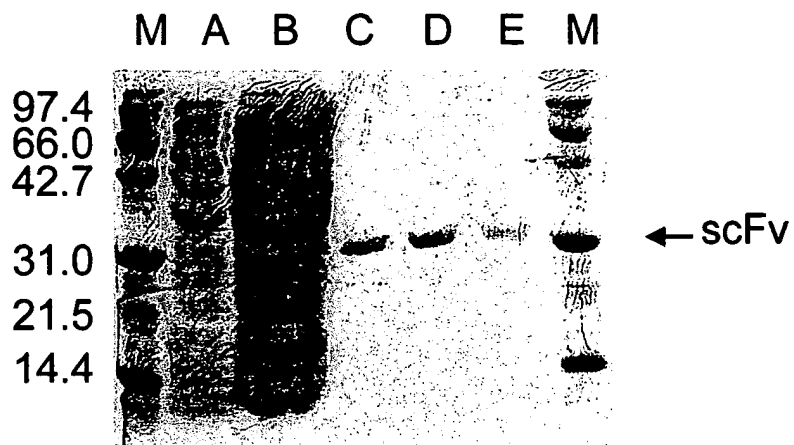


FIG. 16

APPROVED	0.0. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

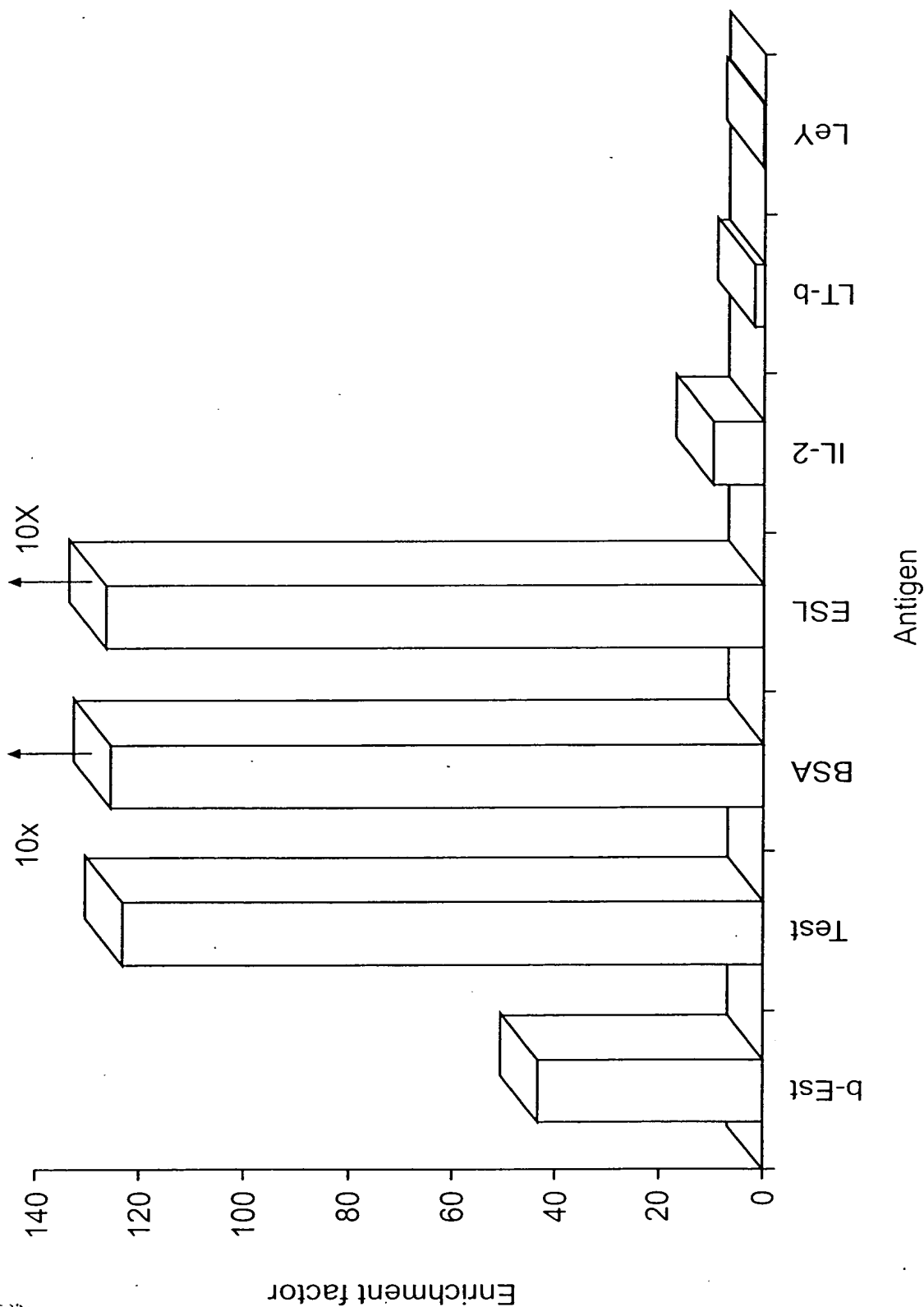


FIG. 17



APPROVED	O.G. FIG.		
BY	CLASS	SUBCLASS	
DRAFTSMAN			

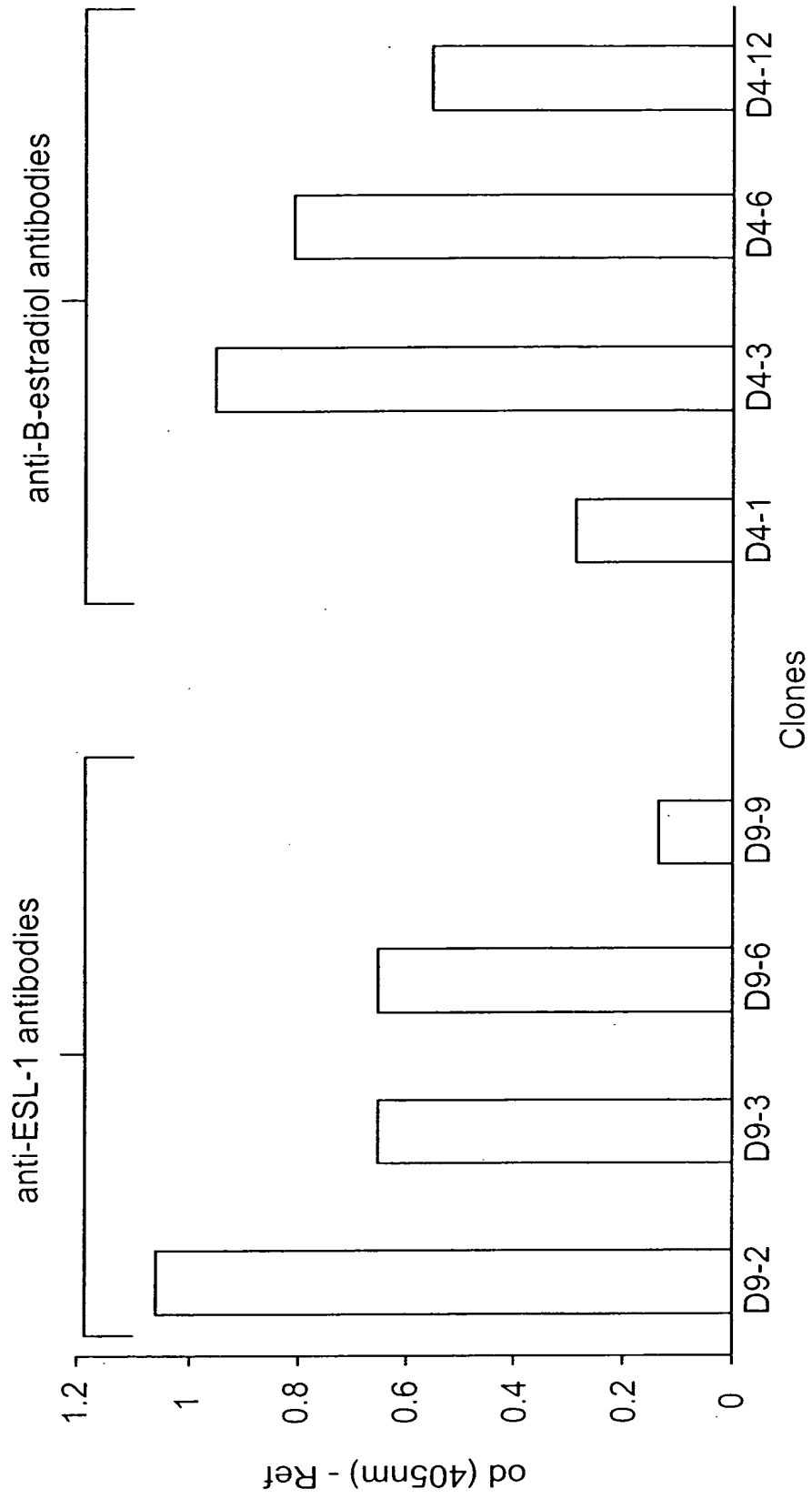


FIG. 18

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

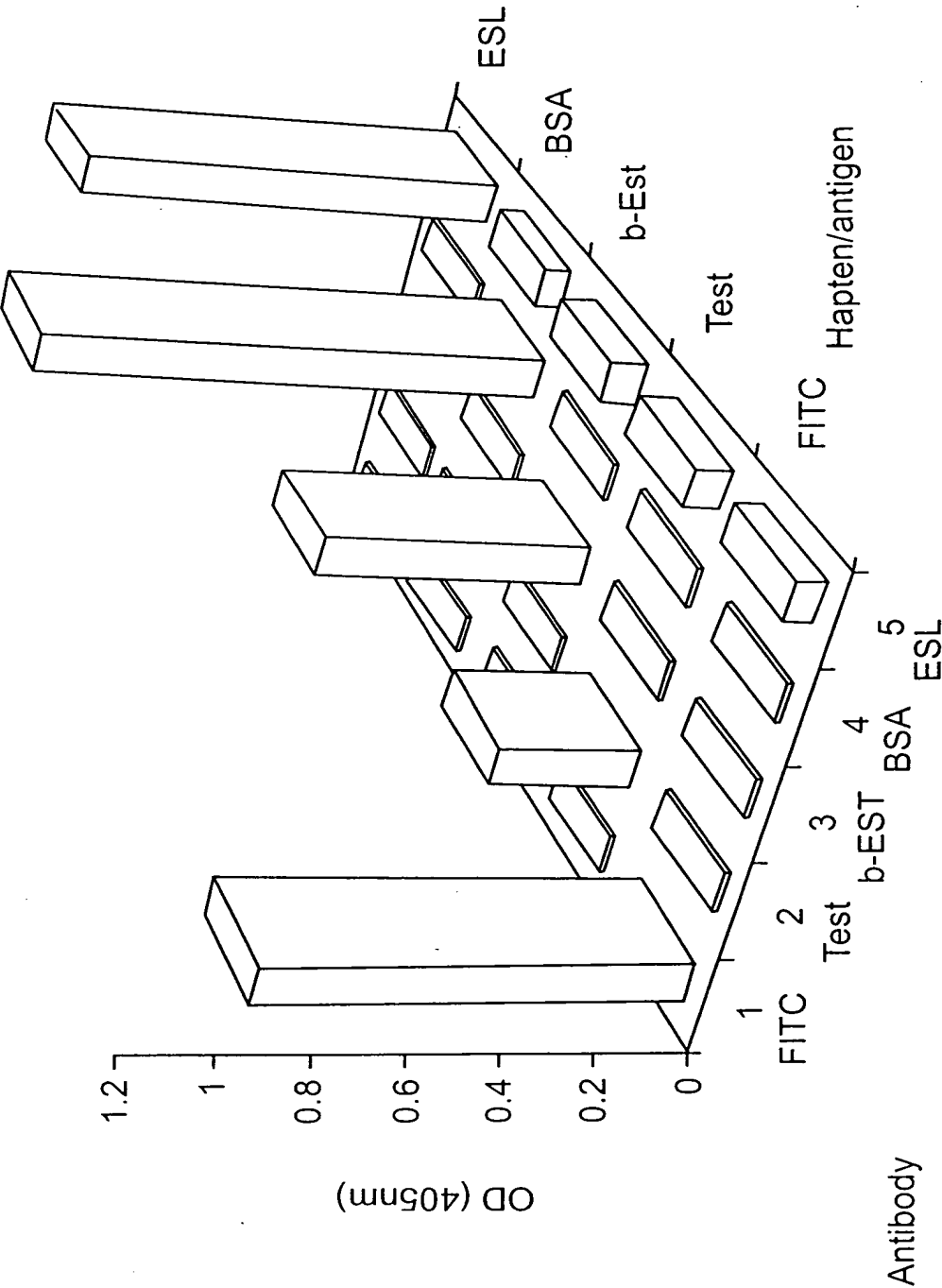


FIG. 19

APPROVED	O.G. FIG.		
BY	CLASS	SUBCLASS	
DRAFTSMAN			

	FREQUENCY			
103	W	3	W	3
102	V	8	Y	8
101	D	7	Y	7
100E	F	1	F	1
100D	G	1	M	1
100C	K	1	R	1
100B	R	1	G	1
100A	T	1	I	1
100	A	1	P	1
99	Q	1	F	1
98	W	1	E	1
97	P	1	W	1
96	R	1	Q	1
95	T	1	N	1
94	R	1	R	1
93	A	1	A	1
92	C	1	C	1

FIG. 20

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

	FREQUENCY					
103	W	W	W	W	W	W
102	Y	Y	Y	V	Y	Y
101	D	D	D	D	D	D
100F	F	F	F	F	F	F
100D	A	Q	Q	M	W	Q
100C	L	M	M	T	K	M
100B	K	K	K	K	M	Q
100A	R	Q	N	M	I	R
100	K	W	R	W	R	S
99	A	A	A	A	R	A
98	Q	H	Y	G	L	R
97	K	R	K	R	P	K
96	I	N	V	K	K	R
95	Y	Y	Y	Y	R	Y
94	R	R	R	R	R	R
93	A	A	A	A	A	A
92	C	C	C	C	C	C

FIG. 21

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

	FREQUENCY							
103	W	W	W	W	W	W	W	W
102	V	Y	Y	Y	Y	V	Y	Y
101	D	D	D	D	D	D	D	D
100E	F	M	F	M	M	F	M	F
100D	H	P	Q	W	V	S	W	W
100C	G	D	V	H	H	Q	E	Y
100B	K	Y	W	H	D	T	N	W
100A	I	S	Y	P	R	F	E	F
100	K	N	N	K	A	Q	T	I
99	S	F	D	L	Q	S	Q	L
98	R	D	L	Y	E	N	F	T
97	Y	R	D	A	I	H	H	P
96	R	W	A	Q	L	W	D	W
95	Q	-	M	L	R	S	V	D
94	R	R	R	R	R	R	R	R
93	A	A	A	A	A	A	A	A
92	C	C	C	C	C	C	C	C

FIG. 22

O.G. FIG.			FREQUENCY
APPROVED	BY	CLASS SUBCLASS	
DRAFTSMAN			
92	C	C	W
93	A	A	W
94	R	R	W
95	G	Q	W
96	F	F	W
97	G	D	W
98	F	E	W
99	T	D	W
100	E	S	W
100A	-	F	W
100B	-	V	W
100C	-	R	W
100Ca	-	-	W
100D	-	R	W
100E	-	F	W
101	D	D	W
102	Y	V	W
103	W	W	W

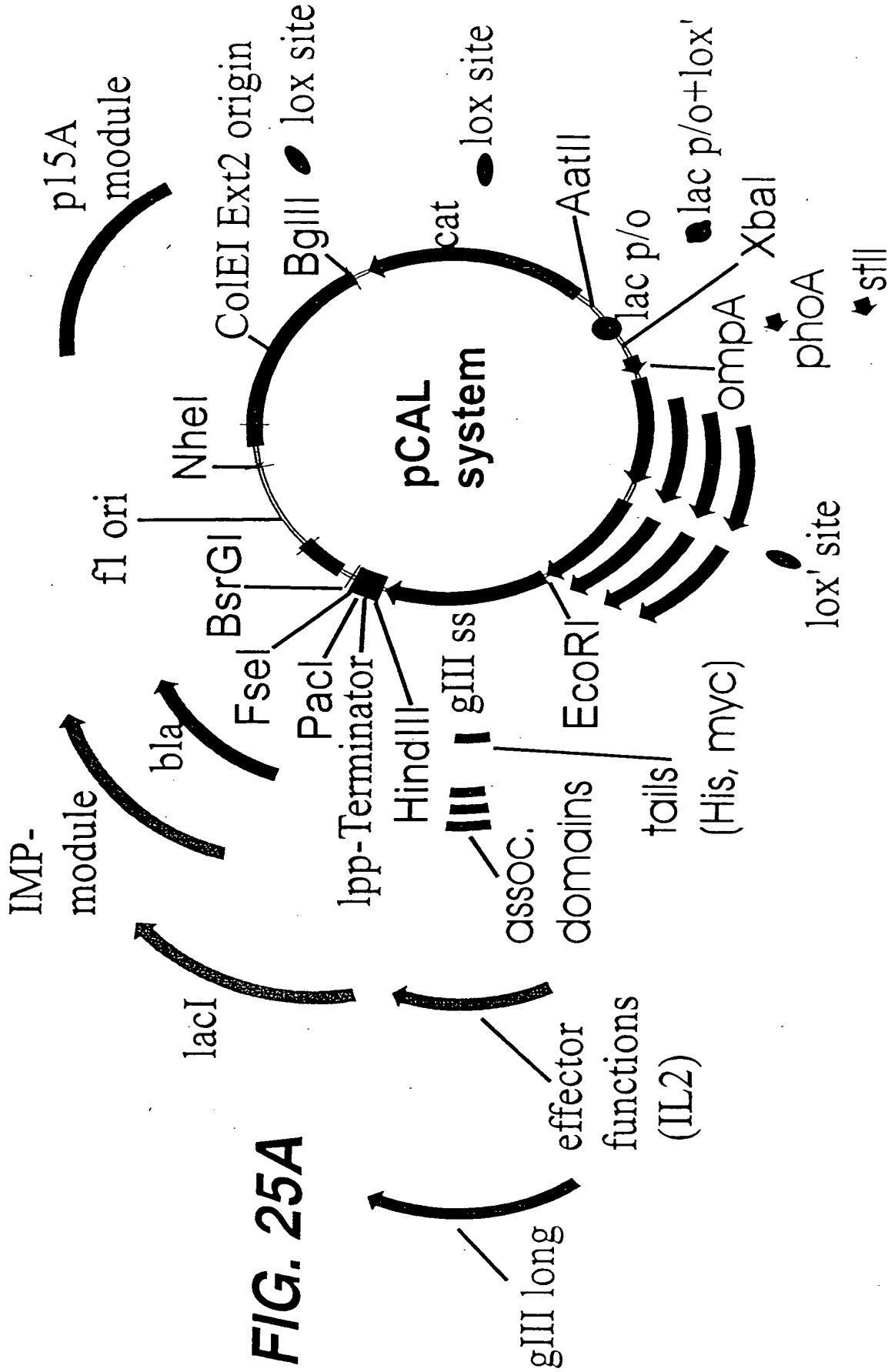
FIG. 23

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

	FREQUENCY					
92	C	C	C	C	C	C
93	A	A	A	A	A	A
94	R	R	R	R	R	R
95	D	V	V	E	Y	D
96	Q	F	F	K	P	G
97	G	T	F	E	S	G
98	F	Y	E	Y	R	F
99	Y	M	Q	R	W	K
100	A	Y	M	L	A	P
100A	I	N	E	S	P	L
100B	D	Y	V	W	N	T
100C	Y	F	V	S	W	H
100D	V	R	R	Q	Y	F
100E	M	F	M	M	M	F
101	D	D	D	D	D	D
102	Y	V	V	Y	Y	V
103	W	W	W	W	W	W
	5	1	1	1	1	1

FIG. 24

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUSCLASS



unique restriction site	Isoschizomers
AatII	/
AfIII	BfrI, BspTI, Bst98I
AscI	/
Asel	Vspl, AsnI, PshBI
BamHI	BstI
BbeI	EheI, KasI, NarI
BbsI	BpuAI, BpiI
BglII	/
BlpI	Bpu1102I, CelII, BlpI
BsaBI	MamI, Bsh1365I, BsrBRI
BsiWI	Pfl23II, SphI, SnuI
BspEI	AccIII, BseAI, BsiMI, Kpn2I, MroI
BsrGI	Bsp1407I, SspBI
BssHII	Paul
BstEII	BstPI, Eco91I, EcoO651
BstXI	/
Bsu36I	AocI, CvnI, Eco81I
Drall	/
DsmAI	
EagI	BstZI, EclXI, Eco52I, XmaIII
Eco57I	/
EcoO109I	Drall
EcoRI	/
EcoRV	Eco32I
FseI	/
HindIII	/
HpaI	/
KpnI	Acc65I, Asp718I
MluI	/
MscI	Ball, MluNI

FIG. 25B

APPROVED	O.G. FIG.	CLASS	SUBCLASS
BY			
DRAFTSMAN			

APPROVED	O.G. FIG.	
	CLASS	SUBCLASS
BY	DRAFTSMAN	

unique restriction site	Isoschizomers
MunI	MfeI
NheI	/
NsiI	Ppu10I, EcoT22I, Mph1103I
NspV	Bsp119I, BstBI, Csp45I, Lspl, Sful
PacI	/
PmeI	/
PmlI	BbrPI, Eco72I, PmaCI
Psp5II	PpuMI
PstI	/
RsrII	(RsrI), Cpol, CspI
SanDI	/
SapI	/
SexAI	/
SpeI	/
SfiI	/
SphI	BbuI, PaeI, Nspl
StuI	AatI, Eco147I
StyI	Eco130I, EcoT14I
XbaI	BspLU11II
XhoI	PaeR7I
XmaI	AvaI, SmaI, Cfr9I, PspAI

FIG. 25C

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

No	module/flanking restriction sites	functional element	sites to be removed	sites to be inserted	template	reference
M1	AatII-lacp/o-XbaI	lac promoter/operator	2x VspI (AseI)	AatII	vector pASK30	Skerra et al. (1991) BioTechnology 9, 273-278
M2	BglII-lox-AatII	Cre/lox recombination site	2x VspI (AseI)	lox, BglII	(synthetic)	Hoess et al. (1986) Nucleic Acids Res. 2287-2300
M3	XbaI-lox'-SphI	Cre/lox' recombination site	none	lox', SphI	(synthetic)	see M2
M7-I	EcoRI-glllong-HindIII	gllp of filamentous phage with N-terminal myctail/amber codon	SphI, BamHI	none	vector pLG10	Ge et al., (1994) Expressing antibodies in E. coli. In: Antibody engineering: A practical approach. IRL Press, New York, pp 229-266

FIG. 26A

APPROVED	O.G. FIG.		
BY	CLASS	SUBCLASS	
DRAFTSMAN			

M7-II	EcoRI-gIIIss-HindIII	truncated gIIIp of filamentous phage with N-terminal Gly-Ser linker	SphI		vector pIG10	see M7-I
M7-III	EcoRI-gIIIss-HindIII	truncated gIIIp of filamentous phage with N-terminal myctail/amber codon	SphI, BbsI		vector pIG10	see M7-I
M8	SphI-lox-HindIII	Cre/lox recombination site	none	lox	(synthetic)	see M3
M9-II	HindIII-lpp-PacI	lpp-terminator	none	PacI, FseI	(synthetic)	see M1
M10-II	PacI/FseI-bla-BsrGI	beta-lactamase/bla (ampR)	VspI, Eco57I, BssSI	PacI, FseI, BsrGI	pASK30	see M1
M11-II	BsrGI-f1 ori-NheI	origin of single-stranded replication	DrallI (BanII not removed)	BsrGI, NheI	pASK30	see M1
M11-III	BsrGI-f1 ori-NheI	origin of single-stranded replication	DrallI, BanII	BsrGI, NheI	pASK30	see M1

FIG. 26B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

M12	NheI-p15A-BgIII	origin of double-stranded replication	BssSI, VspI, NspV	NheI, BgIII	pACYC184	Rose, R.E. (1988) Nucleic Acids Res. 16, 355
M13	BgIII-lox-BgIII	Cre/lox recombination site	none	BgIII, lox, XmnI	(synthetic)	see M3
M14-Ext2	BgIII-ColEI-NheI	origin of double-stranded replication	Eco57I (BssSI not removed)	BgIII, NheI	pUC19	Yanisch-Peron, C. (1985) Gene 33,103-119
M17	AatIII-cat-BgIII	chloramphenicol-acetyltransferase/cat (camR)	BspEI, MscI, StyI/NcoI		pACYC184	Cardoso, M. & Schwarz, S. (1992) J. Appl. Bacteriol. 72, 289-293
M19	XbaI-phoA-EcoRI	signal sequence of phosphatase A	(synthetic)		(synthetic)	see M1
M20	XbaI-phoA-FLAG-EcoRI	signal sequence of phosphatase A + FLAG detection tag	(synthetic)		(synthetic)	Knappik, A & Plückthun, A. (1994) BioTechniques 17, 754-761

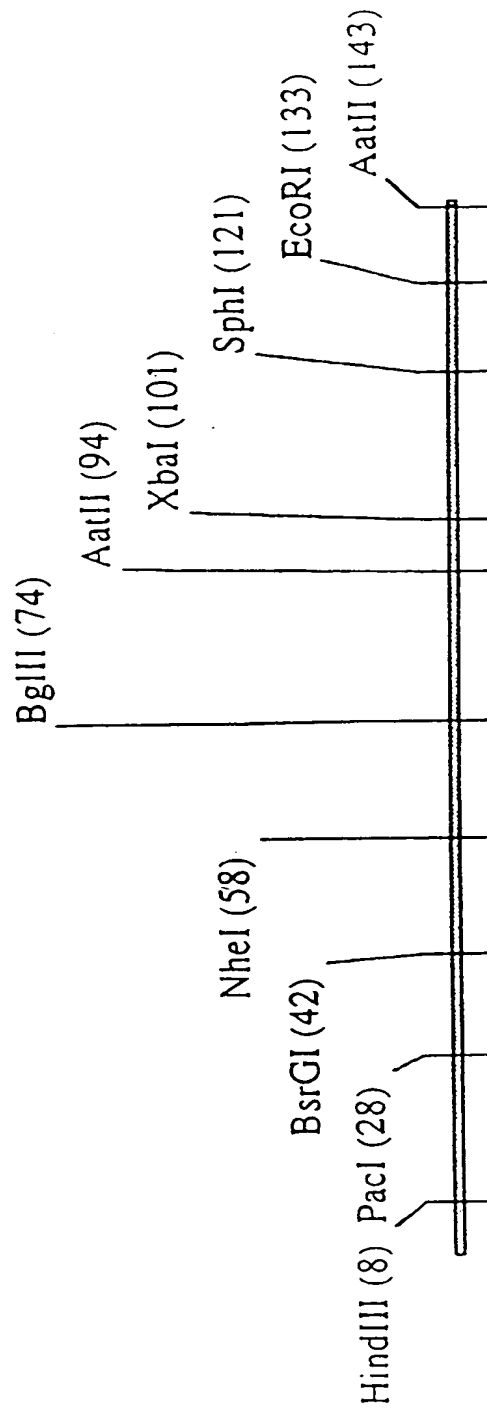
FIG. 26C

APPROVED	O.G. FIG.
BY	CLASS /SUBCLASS
DRAFTSMAN	

M21	XbaI-stII-SapI	heat-stable enterotoxin II signal sequence	(synthetic)		(synthetic)	Lee et al. (1983) Infect. Immunol. 264-268
M41	AfIII-lacI-NheI	lac-repressor	BstXI, MluI, BbsI, BanII, BstEII, HpaI, BbeI, VspI		pASK30	see M1
M42	EcoRI-Histail-HindIII	poly-histidine tail	(synthetic)		(synthetic)	Lindner et al., (1992) Methods: a companion to methods in enzymology 4, 41-56

FIG. 26D

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	



MCS
143 bp
FIG. 27A

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

	HindIII	PacI	BsrGI
1	ACATGTAAGC TTCCCCCCCC CCTTAATTAA CCCCCCCCCC TGACACCCCC	~~~~~	~~~~~
	TGTACATTTCG AAGGGGGGGG GGAATTAATT GGGGGGGGGG ACATGTGGGG		
	NheI	BglII	AatII XbaI
	~~~~~	~~~~~	~~~~~
51	CCCCCGCTA GCCCCCCCCC CCAGATCTCC CCCCCCCCCG CGTCCCCCCT		
	GGGGGGCGAT CGGGGGGGGG GGTCTAGAGG GGGGGGGGGT GCAGGGGGGA		
	XbaI	SphI	EcoRI AatII
	~~~~~	~~~~~	~~~~~
101	CTAGACCCCC CCCCCCGCATG CCCCCCCCCC CGAATTCGAC GTC		
	GATCTGGGGG GGGGGCGTAC GGGGGGGGGG GCTTAAGCTG CAG		

FIG. 27B

APPROVED	0.6. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

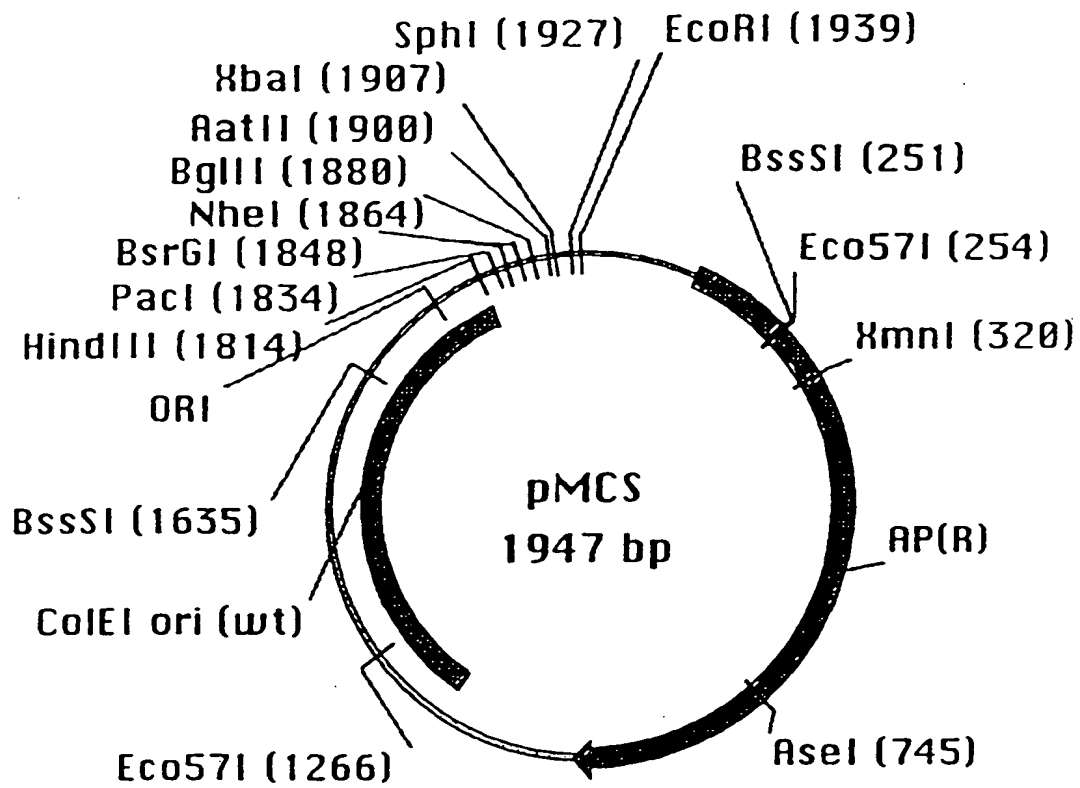


FIG. 28A

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

```

1  CAGGTGGCAC TTTTCGGGGA AATGTGCGCG GAACCCCTAT TTGTTTATTT
   GTCCACCGTG AAAAGCCCCT TTACACGCGC CTGCGGATA AACAAATAAA

51  TTCTAAATAC ATTCAAATAT GTATCCGCTC ATGAGACAAAT AACCCTGATA
   AAGATTATG TAAGTTTATA CATAGGCGAG TACTCTGTTA TTGGGACTAT

101 AATGCTTCAA TAATATTGAA AAAGGAAGAG TATGAGTATT CAACATTTCC
   TTACGAAAGTT ATTATAACTT TTTCCCTTCTC ATACTCATAA GTTGTAAGG

151 GTGTCGCCCT TATTCCTTT TTTGCGGCAT TTTGCCCTCC TGTTTTTGCT
   CACAGCGGGA ATAAGGAAA AAACGCCGTA AAACGGAAGG ACAAAAACGA

      Eco57I
      ~~~~~

201 CACCCAGAAA CGCTGGTGAA AGTAAAGAT GCTGAAGATC AGTTGGGTGC
   GTGGGTCTTT GCGACCACTT TCATTTTCTA CGACTTCTAG TCAACCCACG
      BssSI
      ~~~~~

251 ACGAGTGGGT TACATCGAAC TGGATCTCAA CAGCGGTAAG ATCCTTGAGA
   TGCTCACCCA ATGTAGCTTG ACCTAGAGTT GTCGCCATTC TAGGAACCTC
      BssSI
      ~~~~~

```

FIG. 28B

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS

XmnI

```

301  GTTTTCGCCCG  CGAAGAACGT  TTTCCAATGA  TGAGCACTTT  TAAAGTTCTG
    CAAAAGCGGG  GCTTCTTGCA  AAAGTTACT  ACTCGTGAAA  ATTCAAGAC

351  CTATGTGGCG  CCGTATTATC  CCGTATTGAC  GCCGGGCAAG  AGCAACTCGG
    GATACACCGC  GCCATAATAG  GGCATAACTG  CGCCCCGTTT  TCGTTGAGCC

401  TCGCCGCATA  CACTATTCTC  AGAATGACTT  GGTGAGTAC  TCACCAGTCA
    AGCGGCGGTAT  GTGATAAGAG  TCTTACTGAA  CCAACTCATG  AGTGGTCAGT

451  CAGAAAGCA  TCTTACGGAT  GGCATGACAG  TAAGAGAATT  ATGCAGTGCT
    GTCTTTTCGT  AGAATGCCCTA  CCGTACTGTC  ATTCTCTTAA  TACGTCACGA

501  GCCATAACCA  TGAGTGATAA  CACTGCGGCC  AACTTACTTC  TGACAACGAT
    CGGTATTGGT  ACTCACTATT  GTGACGCCCG  TTGAATGAAG  ACTGTTGCTA

551  CGGAGGACCG  AAGGAGCTAA  CCGCTTTTTC  GCACAACATG  GGGGATCATG
    GCCTCCTGGC  TTCCCTCGATT  GCGGAAAAAA  CGTGTGTGAC  CCCCTAGTAC

601  TAACTCGCCT  TGATCGTTGG  GAACCGGAGC  TGAATGAAGC  CATACCAAAC
    ATTGAGCGGA  ACTAGCAACC  CTTGGCCTCG  ACTTACTTCG  GTATGGTTTG

651  GACGAGCGTG  ACACCACGAT  GCCTGTAGCA  ATGGCAACAA  CGTTGCGCAA
  
```

FIG. 28C

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

CTGCTCGCAC TGTGGTGCTA CGGACATCGT TACCGTTGTT GCAACGCGTT

AseI
 ~~~~~

701 ACTATTAACT GCGAACTAC TTACTCTAGC TTCCCGGCAA CAATTAATAG  
 TGATAATTGA CCGCTTGATG AATGAGATCG AAGGCCGTT GTTAATTATC

751 ACTGGATGGA GCGGATAAA GTTGCAGGAC CACTTCTGCG CTCGGCCCTT  
 TGACCTACCT CCGCCTATT CAACGTCCTG GTGAAGACGC GAGCCGGGAA

801 CCGGCTGGCT GGTATTGC TGATAAATCT GGAGCCGGTG AGCGTGGGTC  
 GGCCGACCGA CCAAATAACG ACTATTAGA CCTCGGCCAC TCGCACCCAG

851 TCGCGGTATC ATTGACGAC TGGGGCCAGA TGGTAAGCCC TCCCGTATCG  
 AGCGCCATAG TAACGTCGTG ACCCCGGTCT ACCATTGCGG AGGGCATAGC

901 TAGTTATCTA CACGACGGGG AGTCAGGCAA CTATGGATGA ACGAAATAGA  
 ATCAATAGAT GTGCTGCCCC TCAGTCCGTT GATACCTACT TGCTTTATCT

951 CAGATCGCTG AGATAGGTGC CTCACTGATT AAGCATTGGT AACTGTCAGA  
 GTCTAGCGAC TCTATCCACG GAGTGACTAA TTCGTAACCA TTGACAGTCT

1001 CCAAGTTTAC TCATATATAC TTTAGATTGA TTTAAAACTT CATTTTAAAT  
 GGTTCAAATG AGTATATATG AAATCTAACT AAATTTTGAA GTAAAAATTA

FIG. 28D

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

```

1051  TTAAAAGGAT CTAGGTGAAG ATCCCTTTTGG ATAATCTCAT GACCAAAATC
      AATTTTCCTA GATCCACTTC TAGGAAAAC TATTAGAGTA CTGGTTTTAG

1101  CCTTAACGTG AGTTTTCGTT CCACTGAGCG TCAGACCCCG TAGAAAAGAT
      GGAATTGCAC TCAAAAGCAA GGTGACTCGC AGTCTGGGGC ATCTTTTCTA

1151  CAAAGGATCT TCTTGAGATC CTTTTHTTCT GCGCGTAATC TGCTGCTTGC
      GTTTCCTAGA AGAACTCTAG GAAAAAAGA CGCGCATAG ACGACGAACG

1201  AAACAAAAAA ACCACCGCTA CCAGCGGTGG TTTGTTTGCC GGATCAAGAG
      TTTGTTTTTT TGGTGCGGAT GGTGCGCCAC AAACAAACGG CCTAGTTCTC

1251  CTACCAACTC TTTTTCGGAA GGTAAGTGG TTCAGCAGAG CGCAGATACC
      GATGGTTGAG AAAAAGGCTT CCATTGACCG AAGTCGTCTC GCGTCTATGG
                        Eco57I
                        ~~~~~

1301 AAATACTGTC CTTCTAGTGT AGCCGTAGTT AGGCCACCAC TTCAAGAACT
 TTTATGACAG GAAGATCACA TCGGCATCAA TCCGGTGGTG AAGTCTTGA

1351 CTGTAGCACC GCCTACATAC CTCGCTCTGC TAATCCTGTT ACCAGTGGCT
 GACATCGTGG CGGATGTATG GAGCGAGACG ATTAGACAA TGGTCACCGA

```

**FIG. 28E**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

```

1401 GCTGCCAGTG GCGATAAGTC GTGTCTTACC GGGTTGGACT CAAGACGATA
 CGACGGTCAC CGCTATTTCAG CACAGAATGG CCCAACCTGA GTTCTGCTAT

1451 GTTACCGGAT AAGGCGCAGC GGTCCGGCTG AACGGGGGGT TCGTGCACAC
 CAATGGCCCTA TTCCGGCGTCG CCAGCCCCGAC TTGCCCCCCA AGCACGTGTG

1501 AGCCCAGCTT GGAGCGAACG ACCTACACCG AACTGAGATA CCTACAGCGT
 TCGGGTCGAA CCTCGCTTGC TGGATGTGGC TTGACTCTAT GGATGTCGCA

1551 GAGCTATGAG AAAGCGCCAC GCTTCCCGAA GGGAGAAAGG CCGACAGGTA
 CTCGATACTC TTTCGGCGGTG CGAAGGGCTT CCCTCTTTCC GCCGTCCAT

1601 TCCGGTAAGC GGCAGGGTCG GAACAGGAGA GCGCACGAGG GAGCTTCCAG
 AGGCCATTTC CCGTCCACG CTTGTCCTCT CGCGTGCTCC CTCGAAGGTC
 BSSSI
                        ~~~~~

1651  GGGGAAACGC CTGGTATCTT TATAGTCCTG TCGGGTTTCG CCACCTCTGA
      CCCCTTTGCG GACCATAGAA ATATCAGGAC AGCCCAAAGC GTGGAGACT

1701  CTTGAGCGTC GATTTTGTG ATGCTCGTCA GGGGGCGCGA GCCTATGGAA
      GAACTCGCAG CTAAAAACAC TACGAGCAGT CCCCCCGCCT CGGATACCTT

1751  AAACGCCAGC AACGCGGCCT TTTTACGGTT CCTGGCCTTT TGCTGGCCTT

```

**FIG. 28F**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```

TTTGCGGTCG TTGCGCCGGA AAAATGCCAA GGACCGGAAA ACGACCGGAA

1801  HindIII      PacI      BsrGI
      ~~~~~      ~~~~~      ~~~~~
 GTAAGCTTCC CCCCCCCTT AATTAAACCC CCCCCCTGTA
 AACGAGTGTA CATTCAAGG GGGGGGGAA TTAATTGGG GGGGGACAT

1851 BsrGI NheI BglII AatII
      ~~~      ~~~~~      ~~~~~      ~~~~~
      CACCCCCCCC CCGCTAGCCC CCCCCCCCAG ATCTCCCCC CCGGACGTC
      GTGGGGGGGG GCGATCGGG GGGGGGGGTC TAGAGGGGG GGGCTGCAG

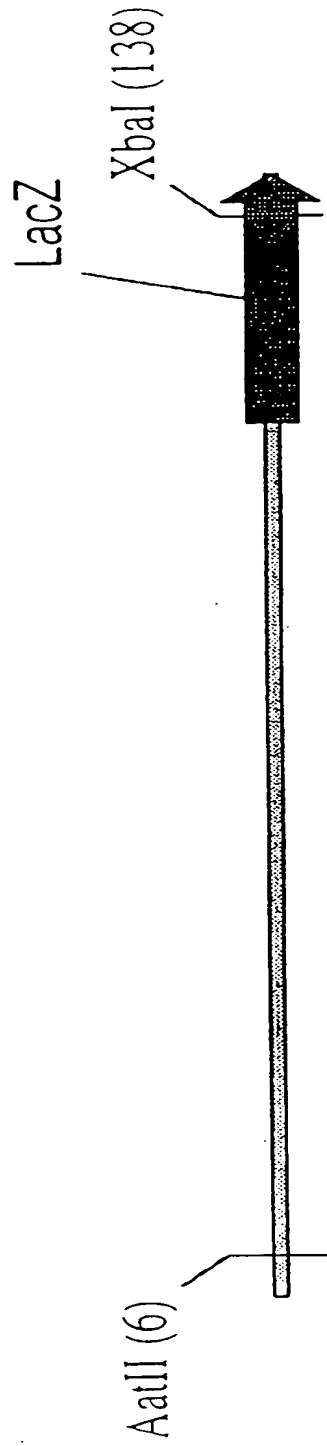
1901  XbaI      SphI      EcoRI
      ~~~~~      ~~~~~      ~~~~~
 CCCCCTCTAG ACCCCCCCCC CGCATGCCCC CCCCCCGAA TTCACGT
 GGGGAGATC TGGGGGGGG GCGTACGGG GGGGGGGCTT AAGTGCA

```

**FIG. 28G**



|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |



M1  
142 bp  
**FIG. 29A**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

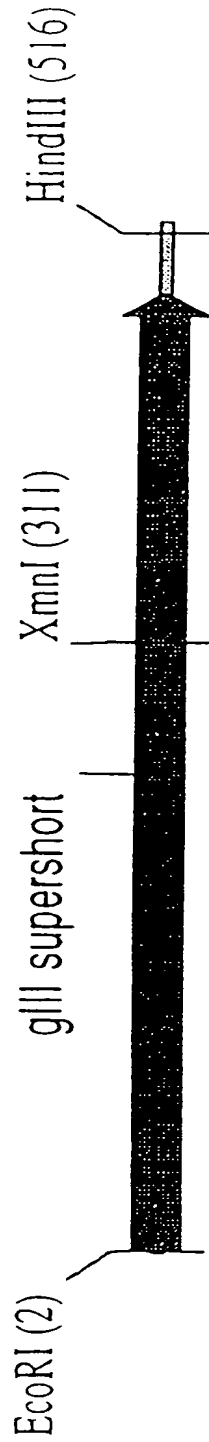
AatII  
 ~~~~~  
 1 GACGTCCTTAA TGTGAGTTAG CTCACTCATT AGGCACCCCA GGCTTTACAC  
 CTGCAGAAATT ACACTCAATC GAGTGAGTAA TCCGTGGGGT CCGAAATGTG

51 TTTATGCTTC CGGCTCGTAT GTTGTGTGGA ATTGTGAGCG GATAACAATT  
 AAATACGAAG GCCGAGCATA CAACACACCT TAACACTCGC CTATTGTTAA

XbaI  
 ~~~~~  
 101 TCACACAGGA AACAGCTATG ACCATGATTA CGAATTCTA GA  
 AGTGTGTCCT TTGTCGATAC TGGTACTAAT GCTTAAAGAT CT

**FIG. 29B**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M7-III (ss/myc/TAG)

520 bp

**FIG. 30A**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

EcoRI  
 ~~~~~  
 1 GAATTCGAGC AGAAGCTGAT CTCTGAGGAG GATCTGTAGG GTGGTGGCTC  
 CTTAAGCTCG TCTTCGACTA GAGACTCCTC CTAGACATCC CACCACCGAG  
  
 51 TGGTTCCGGT GATTTTGATT ATGAAAAGAT GGCAACGCT AATAAGGGGG  
 ACCAAGGCCA CTAAAACTAA TACTTTTCTA CCGTTTGCGA TTATTCCCCC  
  
 101 CTATGACCGA AAATGCCGAT GAAACGGCG TACAGTCTGA CGCTAAAGGC  
 GATACTGGCT TTTACGGCTA CTTTGGCGG ATGTCAGACT GCGATTTCGG  
  
 151 AACTTGATT CTGTCGCTAC TGATTACGGT GCTGCTATCG ATGGTTTCAT  
 TTTGAACTAA GACAGCGATG ACTAATGCCA CGACGATAGC TACCATAAGTA  
  
 201 TGGTGACGTT TCCGGCCTTG CTAATGGTAA TGGTGCTACT GGTGATTTG  
 ACCACTGCAA AGGCCGGAAC GATTACCATT ACCACGATGA CCACTAAAAC  
  
 251 CTGGCTCTAA TTCCCAAATG GCTCAAGTCG GTGACGGTGA TAATCACCT  
 GACCGAGATT AAGGGTTTAC CGAGTTCAGC CACTGCCACT ATTAAGTGGA  
  
 XmnI  
 ~~~~~  
 301 TTAATGAATA ATTTCCGTCA ATATTACCT TCCCTCCCTC AATCGGTTGA  
 AATTACTTAT TAAAGGCAGT TATAAATGGA AGGGAGGGAG TTAGCCAACT

FIG. 30B

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

```

351 ATGTCGCCCT TTTGTCTTTG GCGCTGGTAA ACCATATGAA TTTTCTATTG
 TACAGCGGGA AAACAGAAAC CGCGACCAT TGGTATACTT AAAAGATAAC

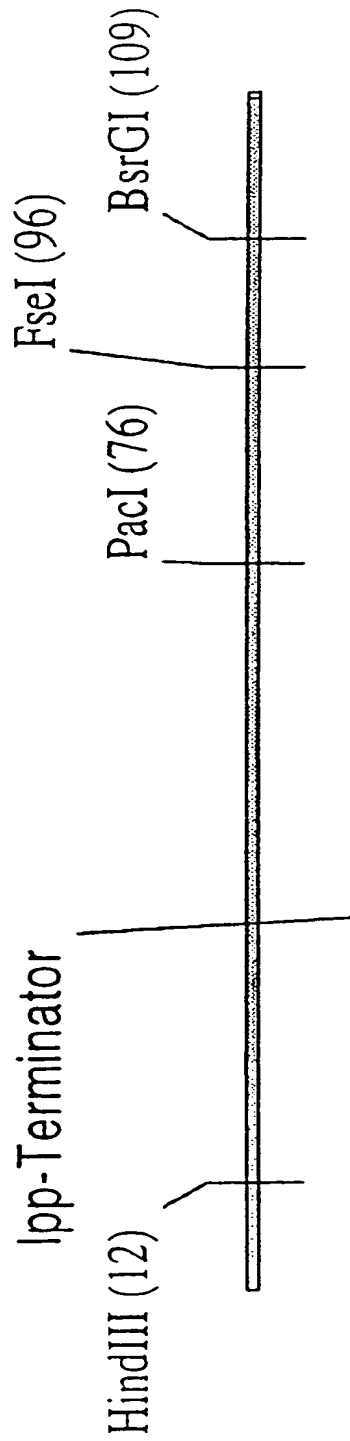
401 ATTGTGACAA AATAAACTTA TTCCGTGGTG TCTTTGCCGT TCTTTTATAT
 TAACACTGTT TTATTTGAAT AAGGCACCAC AGAAACGCCA AGAAAAATATA

451 GTTGCCACCT TTATGTATGT ATTTCTACG TTTGCTAACA TACTGCCGTAA
 CAACGGTGA AATACATACA TAAAGATGC AAACGATTGT ATGACGCCATT

 HindIII
                                ~~~~~
501 TAAGGAGTCT TGATAAGCTT
    ATTCCTCAGA ACTATTCCGA
  
```

**FIG. 30C**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M9-II

123 bp

**FIG. 31A**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

HindIII

~~~~~

1 GGGGGGGGG AAGCTTGACC TGTGAAGTGA AAAATGGCGC AGATTGTGCG
 CCCCCCCCC TTCGAACTGG ACACTTCACT TTTTACCGCG TCTAACACGC

PacI

FseI

~~~~~

~~~~~

51 ACATTTT TGTCTGCCGT TTAATTAAAG GGGGGGGGGG GCCGGCCTGG
 TGTAATAAAA ACAGACGGCA AATTAATTTC CCCCCCCCC CGCCGGACC

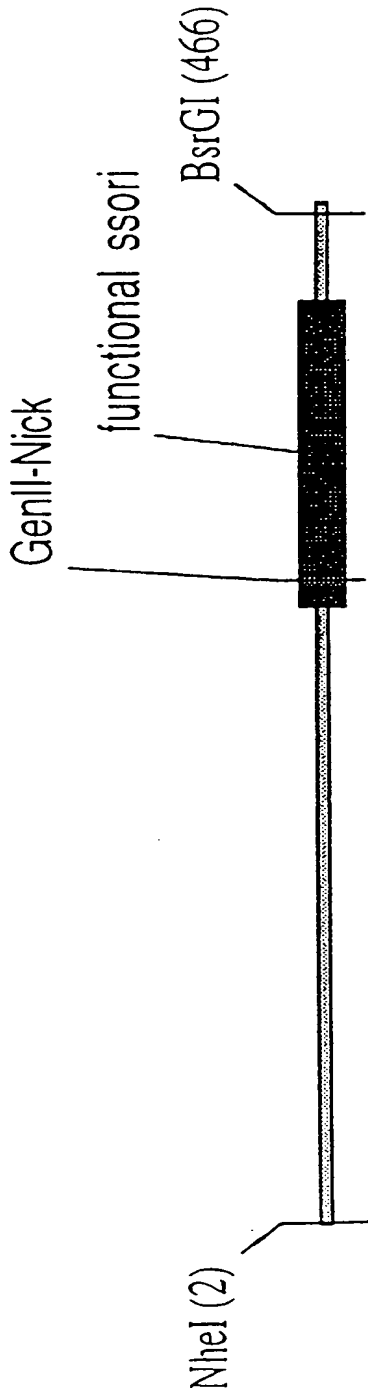
BsrGI

~~~~~

101 GGGGGGGTGT ACAGGGGGG GGG  
 CCCCCCACA TGTCCCCCCC CCC

**FIG. 31B**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M111-III

470 bp

**FIG. 32A**



|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

NheI  
 ~~~~

| | | | | | |
|-----|------------|------------|------------|------------|------------|
| 1 | GCTAGCACGC | GCCCTGTAGC | GGCGCATTA | GGCGGCGGG | TGTGGTGGTT |
| | CGATCGTGCG | CGGACATCG | CCGCGTAATT | CGCGCGCCC | ACACCACCAA |
| 51 | ACGCGCAGCG | TGACCGCTAC | ACTTGCCAGC | GCCCTAGCGC | CCGCTCCTTT |
| | TGCGCGTCGC | ACTGGCGATG | TGAACGGTCG | CGGATCGCG | GGCGAGGAAA |
| 101 | CGCTTTCTTC | CCTTCCTTTC | TCGCCACGTT | CGCCGGCTTT | CCCCGTCAAG |
| | GGAAAGAAG | GGAAGGAAAG | AGCGGTGCAA | CGGCGCGAAA | GGGCGAGTTC |
| 151 | CTCTAAATCG | GGCATCCCT | TTAGGGTTCC | GATTAGTGC | TTTACGGCAC |
| | GAGATTTAGC | CCCGTAGGGA | AATCCCAAGG | CTAAATCAG | AAATGCCGTG |
| 201 | CTCGACCCCA | AAAACTTGA | TTAGGGTGAT | GGTTCTCGTA | GTGGGCCATC |
| | GAGCTGGGGT | TTTTTGAAC | AATCCCACTA | CCAAGAGCAT | CACCCGGTAG |
| 251 | GCCCTGATAG | ACGGTTTTTC | GCCCTTTGAC | GTTGGAGTCC | ACGTTCTTTA |
| | CGGGACTATC | TGCCAAAAAG | CGGAAACTG | CAACCTCAGG | TGCAAGAAAT |
| 301 | ATAGTGGACT | CTTGTTCCAA | ACTGGAACAA | CACCAACCC | TATCTCGGTC |
| | TATCACCTGA | GAACAAGGTT | TGACCTTGTT | GTGAGTTGG | ATAGAGCCAG |
| 351 | TATTCTTTTG | ATTTATAAGG | GATTTGCCG | ATTTCCGCCT | ATTGGTTAAA |

FIG. 32B

| | | |
|-----------|-----------|----------|
| APPROVED | D.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

ATAAGAAAAC TAAATATTCC CTAAACGGC TAAAGCCGGA TAACCAATTT

401 AAATGAGCTG ATTTAACAAA AATTTAACGC GAATTTTAAC AAAATATTAA
 TTTACTCGAC TAAATTGTTT TTAAATTGCG CTTAAAAATTG TTTTATAATT

BsrgI
 ~~~~~

451 CGTTTACAAT TTCATGTACA  
 GCAAATGTTA AAGTACATGT

**FIG. 32C**

APPROVED	O.G. FIG.
BY	CLASS
DRAFTSMAN	SUBCLASS



M14-EXT2  
733 bp  
**FIG. 33A**

APPROVED	U.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

# BglII

~~~~~

```

1  AGATCTGACC AAAATCCCTT AACGTGAGTT TTCGTTCCAC TGAGCGTCAG
   TCTAGACTGG TTTTAGGGAA TTGCACTCAA AAGCAAGGTG ACTCGCAGTC

51  ACCCCGTAGA AAAGATCAAA GGATCTTCTT GAGATCCCTT TTTTCTGCGC
   TGGGGCATCT TTTCTAGTTT CCTAGAAGAA CTCTAGGAAA AAAAGACGCG

101 GTAATCTGCT GCTTGCAAAAC AAAAACAACA CCGCTACCAG CCGTGGTTTG
   CATTAGACGA CGAACGTTTG TTTTTTTGGT GCGGATGGTC GCCACCAAAC

151 TTTGCCGGAT CAAGAGCTAC CAACTCTTTT TCCGAAGGTA ACTGGCTACA
   AAACGGCCTA GTTCTCGATG GTTGAGAAA AGGCTTCCAT TGACCGATGT

201 GCAGAGCGCA GATACCAAAT ACTGTTCTTC TAGTGTAGCC GTAGTTAGGC
   CGTCTCGCGT CTATGGTTTA TGACAAGAAG ATCACATCGG CATCAATCCG

251 CACCACTTCA AGAACTCTGT AGCACCGCCT ACATACCTCG CTCGTCTAAT
   GTGGTGAAGT TCTTGAGACA TCGTGGCGGA TGTATGGAGC GAGACGATTA

301 CCTGTTACCA GTGGCTGCTG CCAGTGGCGA TAAGTCGTGT CTTACCGGGT
   GGACAATGGT CACCGACGAC GGTCACCGCT ATTCAGCACA GAAATGGCCCA

351 TGGACTCAAG ACGATAGTTA CCGGATAAGG CGCAGCGGTC GGGCTGAACG
  
```

FIG. 33B

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

```

ACCTGAGTTC TGCTATCAAT GGCCTATTCC GCGTCGCCAG CCCGACTTGC

401 GGGGGTTCGT GCACACAGCC CAGCTTGGAG CGAACGACCT ACACCGAACT
    CCCCCAAGCA CGTGTCGG GTCGAACCTC GCTTGCTGGA TGTGGCTTGA

451 GAGATACCTA CAGCGTGAGC TATGAGAAAG CGCCACGCTT CCCGAAGGGA
    CTCATATGGAT GTCGCAATCG ATACTCTTTC GCGGTGCGAA GGGCTTCCCT

501 GAAAGGCGGA CAGGTATCCG GTAAGCGGCA GGTTCGGAAC AGGAGAGCGC
    CTTTCCGCCCT GTCCATAGGC CATTCGCCGT CCCAGCCTTG TCCTCTCGCG
    BssSI

551 ACGAGGGAGC TTCCAGGGGG AAACGCCCTGG TATCTTTATA GTCCTGTCCG
    TGCTCCCTCG AAGTCCCCC TTTGCGGACC ATAGAAATAT CAGGACAGCC
    BssSI
    ~~~~

601 GTTTCGCCAC CTCTGACTTG AGCGTCGATT TTTGTGATGC TCGTCAGGGG
    CAAAGCGGTG GAGACTGAAC TCGCAGCTAA AAACACTACG AGCAGTCCCC

651 GCGGAGCCT ATGGAAAAC GCCAGCAACG CGGCCTTTT ACGGTTCCCTG
    CCGCCTCGGA TACCTTTTTC GGTGCTTGC GCCGAAAAA TGCCAAGGAC
  
```

FIG. 33C

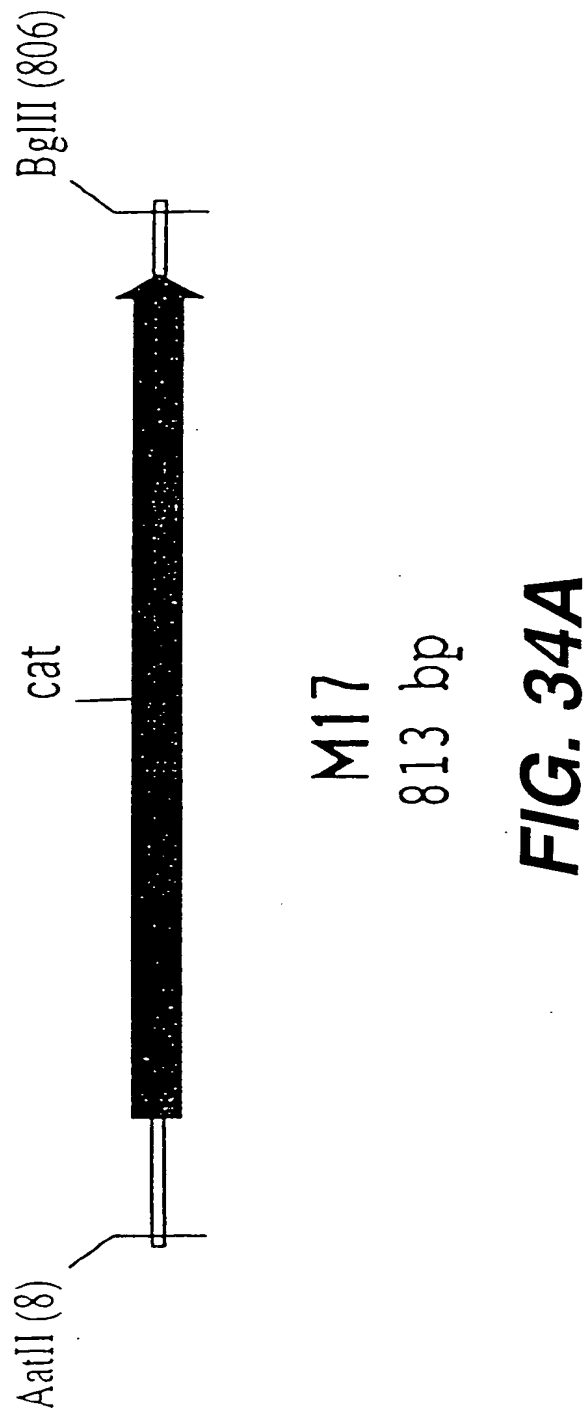
| | |
|-----------|-----------|
| APPROVED | O.G. FIG. |
| BY | CLASS |
| DRAFTSMAN | SUBCLASS |

701 GCCTTTGGCT GGCCTTGGC TCACATGGCT AGC
 CGGAAACGA CCGGAAACG AGGTACCGA TCG

 NheI
                 ~~~~~

**FIG. 33D**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | D.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

# AatII

~~~~~

1	GGGACGTCGG	GTGAGGTTCC	AACTTTCACC	ATAATGAAAT	AAGATCACTA
	CCCTGCAGCC	CACTCCAAGG	TTGAAAGTGG	TATTAATTTA	TTCTAGTGAT
51	CCGGGCGGTAT	TTTTTGAGTT	ATCGAGATTT	TCAGGAGCTA	AGGAAGCTAA
	GGCCCGCATA	AAAAACTCAA	TAGCTCTAAA	AGTCCCTCGAT	TCCTTCGATT
101	AATGGAGAAA	AAAATCACTG	GATATACCAC	CGTTGATATA	TCCCAATGGC
	TTACCTCTTT	TTTTAGTGAC	CTATATGGTG	GCAACTATAT	AGGGTTACCG
151	ATCGTAAAGA	ACATTTTGAG	GCATTTTCAGT	CAGTTGCTCA	ATGTACCCTAT
	TAGCATTTCT	TGTAAACTC	CGTAAAGTCA	GTCACCGAGT	TACATGGGATA
201	AACCAGACCG	TTCAGCTGGA	TATTACGGCC	TTTTTTAAAGA	CCGTAAAGAA
	TTGGTCTGGC	AAGTCGACCT	ATAATGCCCG	AAAAATTCTT	GGCATTTCTT
251	AAATAAGCAC	AAGTTTATC	CGCCTTTAT	TCACATTCTT	GCCCCCCTGA
	TTTATTTCGTG	TTCAAAATAG	GCCGGAATA	AGTGAAGAA	CGGGCGGACT
301	TGAATGCTCA	CCCGGAGTTC	CGTATGGCAA	TGAAAGACGG	TGAGCTGGTG
	ACTTACGAGT	GGGCCTCAAG	GCATACCGTT	ACTTTCTGCC	ACTCGACCAC
351	ATATGGGATA	GTGTTACCCC	TTGTTACACC	GTTTTCCATG	AGCAAACCTGA

FIG. 34B

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

	TATACCCCTAT	CACAAGTGGG	AACAATGTGG	CAAAAGGTAC	TCGTTTGACT
401	AACGTTTCA	TCGCTCTGGA	GTGAATACCA	CGACGATTTC	CGGCAGTTTC
	TTGCAAAAGT	AGCGAGACCT	CACTTATGGT	GCTGCTAAAG	GCCGTCAAAG
451	TACACATATA	TTCGCAAGAT	GTGGCGTGT	ACGGTGAAA	CCTGGCCTAT
	ATGTGTATAT	AAGCGTTCTA	CACCGCACAA	TGCCACTTTT	GGACCGGATA
501	TTCCCTAAAG	GGTTTATTGA	GAATATGTTT	TTCGTCTCAG	CCAATCCCCTG
	AAGGGATTTC	CCAAATAACT	CTTATACAAA	AAGCAGAGTC	GGTAGGGAC
551	GGTGAGTTTC	ACCAGTTTTC	ATTTAAACGT	AGCCAATATG	GACAACTTCT
	CCACTCAAAG	TGGTCAAAAC	TAAATTGCA	TCGGTTATAC	CTGTTGAAGA
601	TCGCCCCCGT	TTTCACTATG	GGCAAATATT	ATACGCAAGG	CGACAAGGTG
	AGCGGGGGCA	AAAGTGATAC	CCGTTTATAA	TATGCGTTCC	GCTGTTCCAC
651	CTGATGCCGC	TGGCGATTCA	GGTTCATCAT	GCCGTTTGTG	ATGGCTTCCA
	GACTACGGCG	ACCGCTAAGT	CCAAGTAGTA	CGGCAAAACAC	TACCGAAGGT
701	TGTCGGCAGA	ATGCTTAATG	AATTACAACA	GTACTGCGAT	GAGTGGCAGG
	ACAGCCGTCT	TACGAAATTAC	TTAATGTTGT	CATGACGCTA	CTCACCGTCC
751	GCGGGGCGTA	ATTTTTTTAA	GGCAGTTATT	GGGTGCCCTT	AAACGCCCTGG

FIG. 34C

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

CGCCCCGCAT TAAAAAATT CCGTCAATAA CCCACGGGAA TTGCGGACC

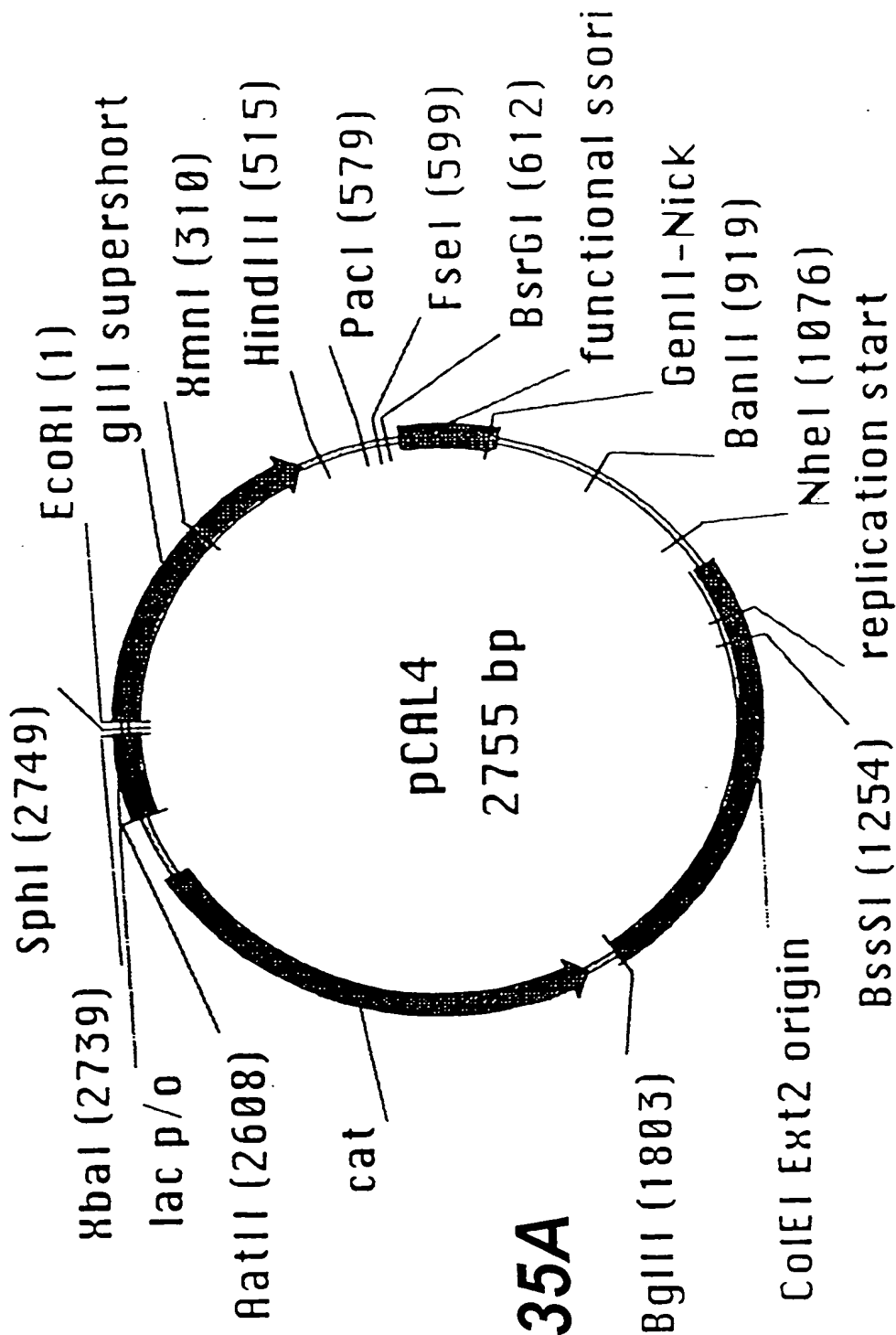
BglII

~~~~~

801 TGCTAGATCT TCC  
ACGATCTAGA AGG

**FIG. 34D**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |



**FIG. 35A**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

ECORI

```

1  AATTCGAGCA GAAGCTGATC TCTGAGGAGG ATCTGTAGGG TGGTGGCTCT
   TTAAGCTCGT CTTCGACTAG AGACTCCTCC TAGACATCCC ACCACCGAGA

51  GGTTCGGGTG ATTTTGATTA TGAAGAAGATG GCAAACGCTA ATAAGGGGGC
   CCAAGGCCAC TAAAACTAAT ACTTTTCTAC CGTTGCGAT TATTCCCCCG

101 TATGACCGAA AATGCCGATG AAAACGCGCT ACAGTCTGAC GCTAAAGGCA
   ATACTGGCTT TTACGGCTAC TTTTGGCGGA TGTCAGACTG CGATTTCCGT

151 AACTTGATTC TGTCGCTACT GATTACGGTG CTGCTATCGA TGGTTTCATT
   TTGAACTAAG ACAGCGATGA CTAATGCCAC GACGATAGCT ACCAAAGTAA

201 GGTGACGTTT CCGGCCCTTG CTAATGGTAAT GGTGCTACTG GTGATTTTGC
   CCACTGCAAA GGCCGGAACG ATTACCATT A CCACGATGAC CACTAAAACG

251 TGGCTCTAAT TCCCAAATGG CTCAGTCCG TGACGGTGAT AATTCACCTT
   ACCGAGATTA AGGGTTTACC GAGTTCAGCC ACTGCCACTA TTAAGTGGA

301 TAATGAATAA TTTCCGTCAA TATTACCTT CCTCCCTCA ATCGGTGAA
   ATTACTTATT AAAGGCAGTT ATAAATGGAA GGGAGGGAGT TAGCCAACTT
  
```

XmnI

FIG. 35B

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

```

351  TGTGCGCCCTT  TTGTCTTTGG  CGTGGTAA  CCATATGAAT  TTTCTATTGA
    ACAGCGGGAA  AACAGAAACC  GCGACCATTT  GGTATACTTA  AAAGATAAAT

401  TTGTGACAAA  ATAAACTTAT  TCCGTGGTGT  CTTTGCGTTT  CTTTATATATG
    AACACTGTTT  TATTTGAATA  AGGCACCACA  GAAACGCCAA  GAAAATATATC

451  TTGCCACCTT  TATGTATGTA  TTTTCTACGT  TTGCTAACAT  ACTGCGTAAT
    AACGGTGGAA  ATACATACAT  AAAAGATGCA  AACGATTGTA  TGACGCATTA

                                HindIII
                                ~~~~~

501 AAGGAGTCTT GATAAGCTTG ACCTGTGAAG TGAAAAATGG CGCAGATTGT
 TTCCTCAGAA CTATTCGAAC TGGACACTTC ACTTTTACC GCGTCTAACA

 PacI
                                ~~~~~

551  GCGACATTTT  TTTTGTCTGC  CGTTTAATTA  AAGGGGGGG  GGGCCCGGCC
    CGCTGTAAAA  AAAACAGACG  GCAAAATTAAT  TTCCCCCCCC  CCCC GGCCGG

                                BsrGI
                                ~~~~~

601 TGGGGGGGGG TGTACATGAA ATTGTAAACG TTAATATTTT GTTAAATTC
 ACCCCCCCCC ACATGTACTT TAACATTTTC AATTATAAAA CAATTTTAAG

```

**FIG. 35C**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```
651 GCGTTAAATT TTTGTTAAAT CAGCTCATTT TTTAACCAAT AGGCCGAAAT
 CGCAATTTAA AAACAATTAA GTCGAGTAAA AAATTGGTTA TCCGGCTTTA

701 CGGCAAAATC CCTTATAAAT CAAAGAATA GACCGAGATA GGGTTGAGTG
 GCCGTTTTAG GGAATATTAA GTTTTCTTAT CTGGCTCTAT CCCAACTCAC

751 TTGTTCCAGT TTGGAACAAG AGTCCACTAT TAAAGAACGT GGACTCCAAC
 AACAAAGTCA AACCTTGTC TCAGTGATA ATTTCTTGCA CCTGAGGTG

801 GTCAAAGGGC GAAAACCCGT CTATCAGGGC GATGGCCCCAC TACGAGAACCC
 CAGTTTCCCG CTTTTTGGCA GATAGTCCCG CTACCGGGTG ATGCTCTTGG

851 ATCACCCCTAA TCAAGTTTTT TGGGTCGAG GTGCCGTAAA GCACTAAATC
 TAGTGGGATT AGTTCAAAAA ACCCCAGCTC CACGGCATTT CGTGATTTAG

 BanII
          ~~~~~

901 GGAACCCCTAA AGGGAGCCCC CGATTTAGAG CTTGACGGGG AAAGCCGGCG
    CCTTGGGATT TCCCTCGGGG GCTAAATCTC GAACTGCCCC TTTCGGCCCC

951 AACGTGGCGA GAAAGGAAGG GAAGAAAGCG AAAGGAGCGG CCGCTAGGGC
    TTGCACCGCT CTTTCCTTCC CTTCTTTTCG CTTCCCTCGC CGCGATCCCC
```

**FIG. 35D**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|       |             |             |             |            |            |
|-------|-------------|-------------|-------------|------------|------------|
| 1001  | GCTGGCAAGT  | GTAGCGGTCA  | CGTGCGCGT   | AACCACCACA | CCGCGCGCGC |
|       | CGACCGTTCA  | CATCGCCAGT  | GCGACGCGCA  | TTGGTGGTGT | GGCGGCGCGC |
| NheI  |             |             |             |            |            |
| 1051  | TTAATGCGCC  | GCTACAGGGC  | GCGTGCTAGC  | CATGTGAGCA | AAAGGCCAGC |
|       | AATTACGCGG  | CGATGTCCCG  | GCGACGATCG  | GTACACTCGT | TTTCCGGTCG |
| 1101  | AAAAGGCCAG  | GAACCGTAAA  | AAGGCCGCGT  | TGCTGGCGTT | TTTCCATAGG |
|       | TTTTCGGGTC  | CTTGGCATTT  | TTCCGGCGCA  | ACGACCGCAA | AAAGGTATCC |
| 1151  | CTCCGCCCCCC | CTGACGAGCA  | TCACAAAAT   | CGACGCTCAA | GTCAGAGGTG |
|       | GAGCGGGGGG  | GACTGCGCGT  | AGTGTTTTA   | GCTGCGAGTT | CAGTCTCCAC |
| 1201  | GCGAAACCCG  | ACAGGACTAT  | AAAGATACCA  | GGCGTTTCCC | CCTGGAAGCT |
|       | CGCTTTGGGC  | TGTCCCTGATA | TTTCTATGGT  | CCGCAAAGGG | GGACCTTCGA |
| BssSI |             |             |             |            |            |
| 1251  | CCCTCGTGCG  | CTCTCCTGTT  | CCGACCCCTGC | CGCTTACCGG | ATACCTGTCC |
|       | GGGAGCACGC  | GAGAGGACAA  | GGCTGGGACG  | GCGAATGGCC | TATGGACAGG |
| 1301  | GCCTTTCTCC  | CTTCGGGAAG  | CGTGGCGCTT  | TCTCATAGCT | CACGCTGTAG |
|       | CGGAAAGAGG  | GAAGCCCTTC  | GCACCGCGAA  | AGAGTATCGA | GTGCGACATC |

**FIG. 35E**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |             |            |             |            |            |
|------|-------------|------------|-------------|------------|------------|
| 1351 | GTATCTCAGT  | TCGGTGTAGG | TCGTTGCGCTC | CAAGCTGGGC | TGTGTGCACG |
|      | CATAGAGTCA  | AGCCACATCC | AGCAAGCGAG  | GTTGACCCCG | ACACACGTGC |
| 1401 | AACCCCCCGT  | TCAGCCCGAC | CGTGCGCCCT  | TATCCGGTAA | CTATCGTCTT |
|      | TTGGGGGGCA  | AGTCGGGCTG | GCGACGCGGA  | ATAGGCCATT | GATAGCAGAA |
| 1451 | GAGTCCAACC  | CGGTAAGACA | CGACTTATCG  | CCACTGGCAG | CAGCCACTGG |
|      | CTCAGGTTGG  | GCCATTCTGT | GCTGAATAGC  | GGTGACCGTC | GTCGGTGACC |
| 1501 | TAACAGGATT  | AGCAGAGCGA | GGTATGTAGG  | CGGTGCTACA | GAGTTCTTGA |
|      | ATTGTCCCTAA | TCGTCTCGCT | CCATACATCC  | GCCACGATGT | CTCAAGAACT |
| 1551 | AGTGGTGGCC  | TAACTACGGC | TACACTAGAA  | GAACAGTATT | TGGTATCTGC |
|      | TCACCAACCGG | ATTGATGCCG | ATGTGATCTT  | CTTGTCATAA | ACCATAGACG |
| 1601 | GCTCTGCTGT  | AGCCAGTTAC | CTTCGGAAAA  | AGAGTTGGTA | GCTCTTGATC |
|      | CGAGACGACA  | TCGGTCAATG | GAAGCCTTTT  | TCTCAACCAT | CGAGAACTAG |
| 1651 | CGGCAAAACAA | ACCACCGCTG | GTAGCGGTGG  | TTTTTTTGT  | TGCAAGCAGC |
|      | GCCGTTTGTT  | TGGTGCGGAC | CATCGCCACC  | AAAAAAACAA | ACGTTTCGTG |
| 1701 | AGATTACGCG  | CAGAAAAAAA | GGATCTCAAG  | AAGATCCTTT | GATCTTTTCT |
|      | TCTAATGCGC  | GTCTTTTTTT | CCTAGAGTTC  | TTCTAGGAAA | CTAGAAAAAG |

**FIG. 35F**



|           |           |          |
|-----------|-----------|----------|
| APPROVED  | D.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |              |            |            |            |            |
|------|--------------|------------|------------|------------|------------|
| 1751 | ACGGGGTCTG   | ACGCTCAGTG | GAACGAAAAC | TCACGTTAAG | GGATTTTGGT |
|      | TGCCCCAGAC   | TGCGAGTCAC | CTTGCTTTTG | AGTGCAATTC | CCTAAAACCA |
|      | BglII        |            |            |            |            |
|      | ~~~~~        |            |            |            |            |
| 1801 | CAGATCTAGC   | ACCAGGCGTT | TAAGGGCACC | AATAACTGCC | TTAAAAAAT  |
|      | GTCTAGATCG   | TGTCCGCAA  | ATCCCGTGG  | TTATTGACGG | AATTTTTTA  |
| 1851 | TACGCCCCCGC  | CCTGCCACTC | ATCGCAGTAC | TGTTGTAATT | CATTAAGCAT |
|      | ATGCGGGGCG   | GGACGGTGAG | TAGCGTCATG | ACAACATTAA | GTAATTTCGT |
| 1901 | TCTGCCCCGACA | TGGAAGCCAT | CACAAACGGC | ATGATGAACC | TGAATCGCCA |
|      | AGACGGCTGT   | ACCTTCGGTA | GTGTTTGCCG | TACTACTTGG | ACTTAGCCGT |
| 1951 | GCGGCATCAG   | CACCTTGTCG | CCTTGCGTAT | AAATATTGCC | CATAGTGAAA |
|      | CGCCGTAAGC   | GTGGAACAGC | GGAACGCATA | TTATAAACGG | GTATCACTTT |
| 2001 | ACGGGGGCGA   | AGAAATTGTC | CATATTGGCT | ACGTTTAAAT | CAAAACTGGT |
|      | TGCCCCCGCT   | TCCTCAACAG | GTATAACCGA | TGCAAAATTA | GTTTGACCA  |
| 2051 | GAAACTCACC   | CAGGGATTGG | CTGAGACGAA | AAACATATTC | TCAATAAAC  |
|      | CTTTGAGTGG   | GTCCCTAAC  | GACTCTGCTT | TTTGTATAAG | AGTTATTGG  |

**FIG. 35G**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |                                                        |                                                         |
|------|--------------------------------------------------------|---------------------------------------------------------|
| 2101 | CTTAGGGAA ATAGGCCAGG TTTTCACCGT AACACGCCAC ATCTTGCGAA  | GAAATCCCTT TATCCGCTCC AAAAGTGCCA TTGTGCGGTG TAGAACGCTT  |
| 2151 | TATATGTGTA GAAACTGCCG GAAATCGTCG TGGTATTCAC TCCAGAGCGA | ATATACACAT CTTTGACGGC CTTTAGCAGC ACCATAAGTG AGGTCTCGCT  |
| 2201 | TGAAAACGTT TCAGTTTGCT CATGGAAAAC GGTGTAACAA GGTGAACAC  | ACTTTTGCAA AGTCAAACGA GTACCTTTTG CCACATTGTT CCCACTTG TG |
| 2251 | TATCCCATAT CACCAGCTCA CCGTCTTTCA TTGCCATACG GAACTCCGGG | ATAGGGTATA GTGGTCGAGT GGCAGAAAGT AACGGTATGC CTTGAGGCC   |
| 2301 | TGAGCATTCA TCAGCGGGC AAGAATGTGA ATAAAGGCCG GATAAACTT   | ACTCGTAAGT AGTCCGCCCG TTCTTACACT TATTTCCGGC CTATTTTGAA  |
| 2351 | GTGCTTATTT TTCCTTACGG TCTTTAAAAA GGCCGTAATA TCCAGCTGAA | CACGAATAAA AAGAAATGCC AGAAATTTT CCGGCATTAT AGGTCCACTT   |
| 2401 | CGGTCCTGGT ATAGGTACAT TGAGCAACTG ACTGAAATGC CTCAAATGT  | GCCAGACCAA TATCCATGTA ACTCGTTGAC TGACTTTACG GAGTTTACA   |
| 2451 | TCCTTACGAT GCCATTGGGA TATATCAACG GTGGTATATC CAGTGATTTT | AGAAATGCTA CGGTAACCCCT ATATAGTTGC CACCATATAG GTCACTAAA  |

**FIG. 35H**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

2501 TTTCTCCATT TTAGCTTCCT TAGCTCCTGA AAATCTCGAT AACTCAAAAA  
 AAAGAGGTAA AATCGAAGGA ATCGAGGACT TTTAGAGCTA TTGAGTTTTT

2551 ATACGCCCGG TAGTGATCTT ATTCATTAT GGTGAAAGTT GGAACCTCAC  
 TATGCGGGCC ATCACTAGAA TAAAGTAATA CCACTTTCAA CCTTGGAGTG

AatII

~~~~~

2601 CCGACGTCTA ATGTGAGTTA GCTCACTCAT TAGGCACCCC AGGCTTTACA
 GGCTGCAGAT TACACTCAAT CGAGTGAGTA ATCCGTGGGG TCCGAAATGT

2651 CTTTATGCTT CCGGCTCGTA TGTGTGTGG AATTGTGAGC GGATAACAAT
 GAAATACGAA GGCCGAGCAT ACAACACACC TTAACACTCG CCTATTGTTA

XbaI SphI

~~~~~

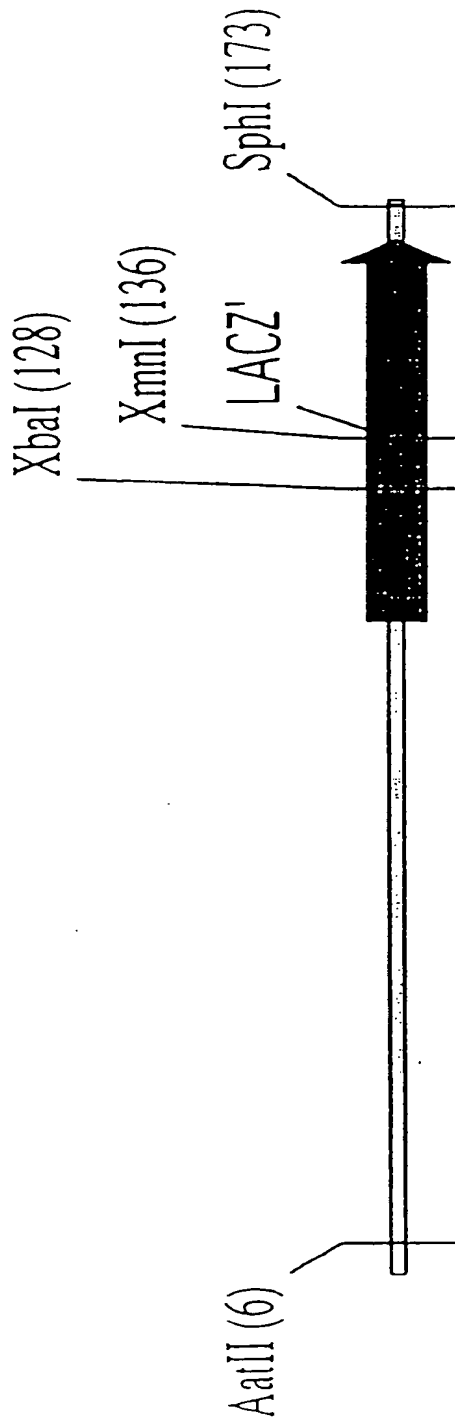
2701 TTCACACAGG AAACAGCTAT GACCATGATT ACGAATTTCT AGAGCATGCG  
 AAGTGTGTCC TTTGTGATA CTGGTACTAA TGCTTAAAGA TCTCGTACGC

EcoRI

2751 GGGGG  
 CCCCC

**FIG. 35I**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M2  
173 bp  
**FIG. 35J**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 2:

AatII

~~~~~

1 GACGTCTTAA TGTGAGTTAG CTCACTCATT AGGCACCCCA GGCTTTACAC
 CTGCAGAATT ACACTCAATC GAGTGAGTAA TCCGTGGGGT CCGAAATGTG

51 TTTATGCTTC CGGCTCGTAT GTTGTGTGGA ATTGTGAGCG GATAACAATT
 AAATACGAAG GCCGAGCATA CAACACACCT TAACACTCGC CTATTGTTAA

XmnI

~~~~~

XbaI

~~~~~

101 TCACACAGGA AACAGCTATG ACCATGTCTA GAATAACTTC GTATAATGTA
 AGTGTGTCCT TTGTCGATAC TGGTACAGAT CTTATTGAAG CATATTACAT

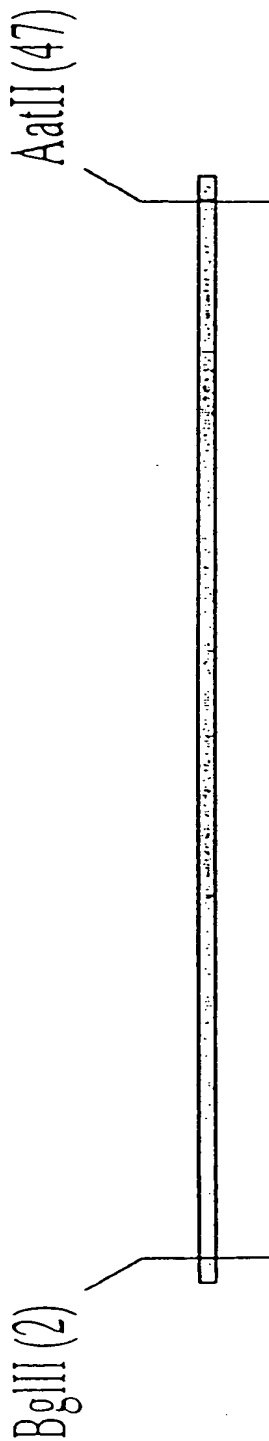
SphI

~~~~~

151 CGCTATACGA AGTTATCGCA TGC  
 GCGATATGCT TCAATAGCGT ACG

FIG. 35K

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M3  
47 bp  
**FIG. 35L**

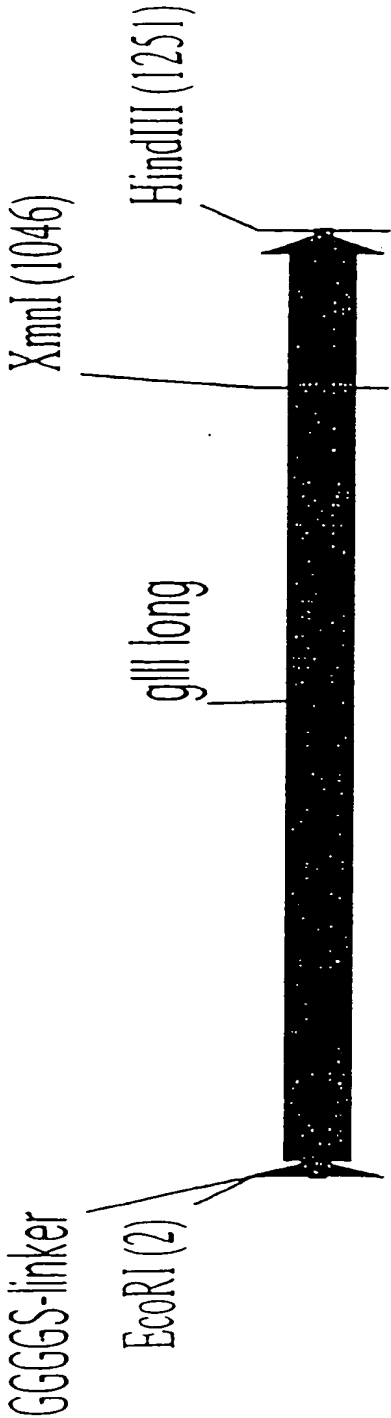
|           |           |          |
|-----------|-----------|----------|
| APPROVED  | C.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 3:

|   |                                                     |       |
|---|-----------------------------------------------------|-------|
|   | BglII                                               | AatII |
|   | -----                                               | ----- |
| 1 | AGATCTCATA ACTTCGTATA ATGTATGCTA TACGAAGTTA TGACGTC |       |
|   | TCTAGAGTAT TGAAGCATAT TACATACGAT ATGCTTCAAT ACTGCAG |       |

**FIG. 35M**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |



**FIG. 35N**



|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 7-I (long):

ECORI

-----

|     |            |             |            |            |            |
|-----|------------|-------------|------------|------------|------------|
| 1   | GAATTCGGTG | GTGGTGGATC  | TGCGTGCGCT | GAAACGGGTG | AAAGTTGTTT |
|     | CTTAAGCCAC | CACCACCTAG  | ACGCACGCCA | CTTGCCCAAC | TTTCAACAAA |
| 51  | AGCAAAATCC | CATACAGAAA  | ATTCATTAC  | TAACGTCTGG | AAAGACGACA |
|     | TCGTTTTAGG | GTATGTCTTT  | TAAGTAAATG | ATTGCAGACC | TTTCTGCTGT |
| 101 | AAACTTTAGA | TCGTTACGCT  | AACTATGAGG | GCTGTCGTG  | GAATGCTACA |
|     | TTTGAAATCT | AGCAATGCCA  | TTGATACTCC | CGACAGACAC | CTTACGATGT |
| 151 | GGCGTTGTAG | TTTGTA CTGG | TGACGAAACT | CAGTGTTACG | GTACATGGGT |
|     | CCGCAACATC | AAACATGACC  | ACTGCTTTGA | GTCACAATGC | CATGTACCCA |
| 201 | TCCTATTGGG | CTTGCTATCC  | CTGAAAATGA | GGGTGGTGGC | TCTGAGGGTG |
|     | AGGATAACCC | GAACGATAGG  | GACTTTTACT | CCCACCACCG | AGACTCCCAC |
| 251 | GCGGTTCTGA | GGGTGGCGGT  | TCTGAGGGTG | GCGGTACTAA | ACCTCCTGAG |
|     | CGCCAAGACT | CCCACCGCCA  | AGACTCCCAC | CGCCATGATT | TGGAGGACTC |
| 301 | TACGGTGATA | CACCTATTCC  | GGGCTATACT | TATATCAACC | CTCTCGACGG |
|     | ATGCCACTAT | GTGGATAAGG  | CCCGATATGA | ATATAGTTGG | GAGAGCTGCC |

FIG. 350

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | C.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```

351  CACTTATCCG CCTGGTACTG AGCAAAACCC CGCTAATCCT AATCCTTCTC
      GTGAATAGGC GGACCATGAC TCGTTTTGGG GCGATTAGGA TTAGGAAGAG

401  TTGAGGAGTC TCAGCCTCTT AATACTTTCA TGTTTCAGAA TAATAGGTTC
      AACTCCTCAG AGTCGGAGAA TTATGAAAGT ACAAAGTCTT ATTATCCAAG

451  CGAAATAGGC AGGGGGCATT AACTGTTTAT ACGGGCACTG TTACTCAAGG
      GCTTTATCCG TCCCCCGTAA TTGACAAATA TGCCCCGTGAC AATGAGTTCC

501  CACTGACCCC GTTAAAACTT ATTACCAGTA CACTCCTGTA TCATCAAAAG
      GTGACTGGGG CAATTTTGAA TAATGGTCAT GTGAGGACAT AGTAGTTTTC

551  CCATGTATGA CGCTTACTGG AACGGTAAAT TCAGAGACTG CGCTTTCCAT
      GTACATACT GCGAATGACC TTGCCATTTA AGTCTCTGAC GCGAAAGGTA

601  TCTGGCCTTA ATGAGGATTT ATTGTTTGT GAATATCAAG GCCAATCGTC
      AGACCGAAAT TACTCCTAAA TAAACAAACA CTTATAGTTC CGGTTAGCAG

651  TGACCTGCCT CAACCTCCTG TCAATGCTGG CCGCGGCTCT GGTGGTGGTT
      ACTGGACGGA GTTGAGGAC AGTTACGACC GCCGCCGAGA CCACCACCAA

701  CTGGTGCGCG CTCTGAGGGT GGTGGCTCTG AGGGTGGCGG TTCTGAGGGT
      GACCACCGCC GAGACTCCCA CCACCGAGAC TCCCACCGCC AAGACTCCCA
  
```

**FIG. 35P**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```
751  GCGGGCTCTG AGGAGGGCGG TTCCGGTGGT GGCTCTGGTT CCGGTGATTT
    CCGCCGAGAC TCCCTCCGCC AAGGCCACCA CCGAGACCAA GGCCTATAA

801  TGATTATGAA AAGATGGCAA ACGCTAATAA GGGGGCTATG ACCGAAAATG
    ACTAATACTT TTCCTACCGTT TCGGATTATT CCCCCGATAC TGGCTTTTAC

851  CCGATGAAAA CGCGCTACAG TCTGACGCTA AAGGCAAACT TGATTCTGTC
    GGCTACTTTT CGCGGATGTC AGACTGCCAT TTCCGTTTGA ACTAAGACAG

901  GCTACTGATT ACGGTGCTGC TATCGATGGT TTCATTGGTG ACGTTTCCGG
    CGATGACTAA TGCCACGACG ATAGCTACCA AAGTAACCCAC TGCAAAGGCC

951  CCTTGCTAAT GGTAATGGTG CTA CTGCTGGC TTTTGCTGGC TCTAATTCCC
    GGAACGATTA CCATTACCAC GATGACCACT AAAACGACCG AGATTAAAGG

                                XmnI
                                ~~~~~

1001 AAATGGCTCA AGTCGGTGAA GTGATAATT CACCTTTAAT GAATAATTTC
 TTTACCGAGT TCAGCCACTT CCACTATTAA GTGGAATAA CTTATTAAAG

1051 CGTCAATATT TACCTTCCAT CCCTCAATCG GTTGAATGTC GCCCTTTTGT
 GCAGTTATAA ATGGAAGGTA GGGAGTTAGC CAACTTACAG CGGGAACAACA
```

**FIG. 35Q**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```

1101 CTTTGGCGCT GGTAAACCCCT ATGAATTTTC TATTGATTGT GACAAAATAA
 GAAACCCGCGA CCATTGCGGA TACTTAAAG ATAACATAACA CTGTTTTATT

1151 ACTTATTCCG TGGTGTCCTT GCGTTCTTT TATATGTTGC CACCTTTATG
 TGAATAAGGC ACCACAGAAA CGCAAAGAAA ATATACAACG GTGGAAATAC

1201 TATGTATTTT CTACGTTTGC TAACATACTG CGTAATAAGG AGTCTTGATA
 ATACATAAAA GATGCAAACG ATTGTATGAC GCATTATTCC TCAGAACTAT

```

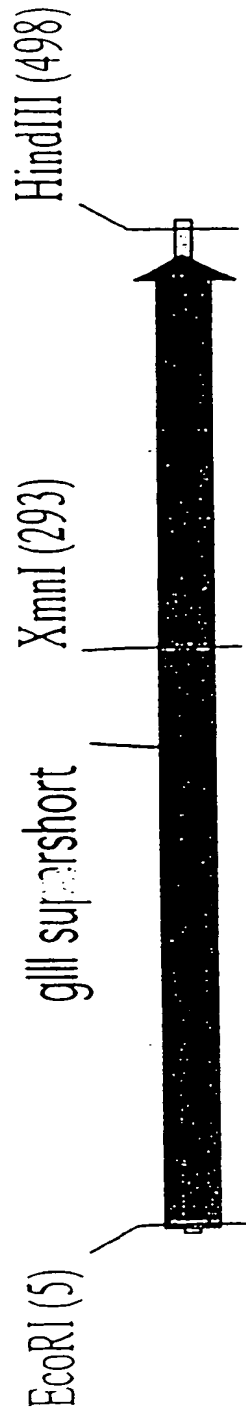
HindIII

```

HindI
~~~
1251 AGCTT
      TCGAA
  
```

**FIG. 35R**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M7-II (ss-TAG)

502 bp

**FIG. 35S**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 7-II (ss-TAG) :

ECORI

~~~~~

1	CGGGAATTCCG	GAGGCGGTTC	CGGTGGTGGC	TCTGGTTCCG	GTGATTTTGA
	GCCCTTAAGC	CTCCGCCAAG	GCCACCACCG	AGACCAAGGC	CACTAAAACT
51	TTATGAAAAG	ATGGCAAACG	CTAATAAGGG	GGCTATGACC	GAAAATGCCG
	AATACTTTTC	TACCGTTTGC	GATTATTCCC	CCGATACTGG	CTTTTACGGC
101	ATGAAAACGC	GCTACAGTCT	GACGCTAAAG	GCAAACCTGA	TTCTGTCGCT
	TACTTTTGGC	CGATGTCAGA	CTGCGATTTC	CGTTTGAAC	AAGACAGCGA
151	ACTGATTACG	GTGCTGCTAT	CGATGGTTTC	ATTGGTGACG	TTTCCGGCCT
	TGACTAATGC	CACGACGATA	GCTACCAAAG	TAACCACTGC	AAAGGCCGGA
201	TGCTAATGGT	AATGGTGCTA	CTGGTGATTT	TGCTGGCTCT	AATCCCCAAA
	ACGATTACCA	TTACCACGAT	GACCACTAAA	ACGACCGAGA	TTAAGGGTTT
251	TGGCTCAAGT	CGGTGACGGT	GATAATTCAC	CTTTAATGAA	TAAATTCGCT
	ACCGAGTTCA	GCCACTGCCA	CTATTAAGTG	GAAATTACTT	ATTAAAGGCA

XmnI

FIG. 35T

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

```

301  CAATATTAC  CTTCCCTCCC  TCAATCGGTT  GAATGTCGCC  CTTTGTCTT
      GTTATAAATG  GAAGGAGGG  AGTTAGCCAA  CTTACAGCGG  GAAACAGAA

351  TGGCGCTGGT  AAACCATATG  AATTTCTAT  TGATTGTGAC  AAAATAAACT
      ACCGCGACCA  TTTGGTATAC  TTAAAGATA  ACTAACACTG  TTTTATTGA

401  TATTCGCTGG  TGTCTTTGCG  TTTCTTTTAT  ATGTTGCCAC  CTTTATGTAT
      ATAAGGCACC  ACAGAAACGC  AAAGAAAATA  TACAACGGTG  GAAATACATA

451  GTATTTTCTA  CGTTTGCTAA  CATACTGCGT  AATAAGGAGT  CTTGATAAGC
      CATAAAAGAT  GCAAACGATT  GTATGACGCA  TTATTCCTCA  GAACTATTCG
  
```

HindIII

Hi

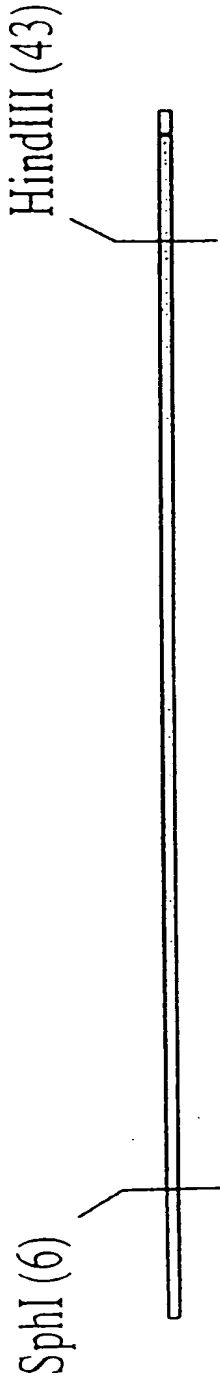
~

501 TT

AA

FIG. 35U

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



M8
47 bp
FIG. 35V

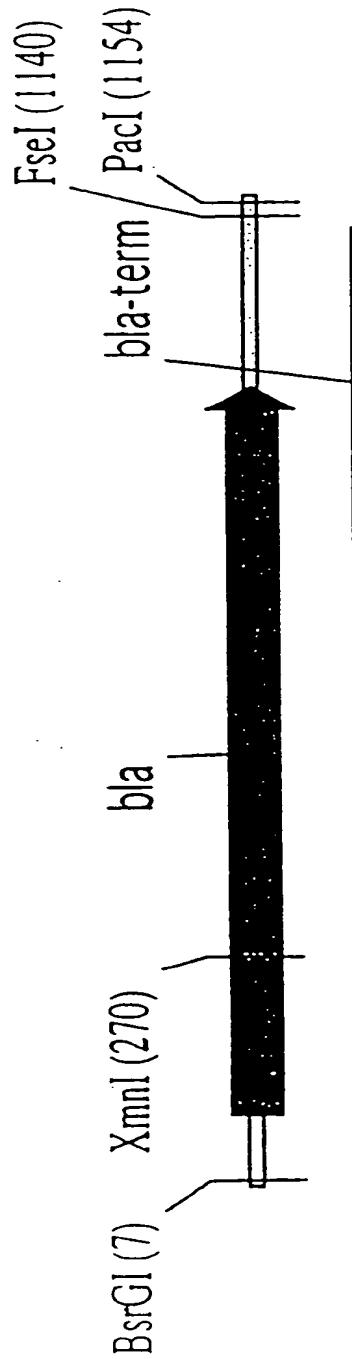
APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

M 8:

	sphI	HindIII
	-----	-----
1	GCATGCCATA ACTTCGTATA ATGTACGCTA TACGAAGTTA TAAGCTT	
	CGTACGGTAT TGAAGCATAT TACATGCGAT ATGCTTCAAT ATTCGAA	

FIG. 35W

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



M10-II

1163 bp

FIG. 35X

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

M 10-II:

BsrGI

~~~~~

|       |            |            |            |            |            |
|-------|------------|------------|------------|------------|------------|
| 1     | GGGGGTGTAC | ATTCAAATAT | GTATCCGCTC | ATGAGACAAT | AACCTGATA  |
|       | CCCCCACATG | TAAGTTTATA | CATAGGCGAG | TACTCTGTTA | TTGGGACTAT |
| 51    | AATGCTTCAA | TAATATTGAA | AAAGGAAGAG | TATGAGTATT | CAACATTGCC |
|       | TTACGAAGTT | ATTATAACTT | TTTCCTTCTC | ATACTCATAA | GTTGTAAGG  |
| 101   | GTGTCGCCCT | TATCCCCTTT | TTTGCGGCAT | TTTGCCCTTC | TGTTTTTGCT |
|       | CACAGCGGGA | ATAAGGAAA  | AAACGCCGTA | AAACGGAAGG | ACAAAAACGA |
| 151   | CACCCAGAAA | CGCTGGTGAA | AGTAAAAGAT | GCTGAGGATC | AGTTGGGTGC |
|       | GTGGGTCTTT | GCGACCACTT | TCATTTTCTA | CGACTCCTAG | TCAACCCACG |
| 201   | GCGAGTGGGT | TACATCGAAC | TGGATCTCAA | CAGCGGTAAG | ATCCTTGAGA |
|       | CGCTCACCCA | ATGTAGCTTG | ACCTAGAGTT | GTCGCCATTC | TAGGAACTCT |
| XmnI  |            |            |            |            |            |
| ----- |            |            |            |            |            |
| 251   | GTTTTCGCCC | CGAAGAACGT | TTTCCAATGA | TGAGCACTTT | TAAAGTTCTG |
|       | CAAAAGCGGG | GCTTCTTGCA | AAAGGTTACT | ACTCGTGAAA | ATTCAAGAC  |

FIG. 35Y

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|     |            |             |            |             |            |
|-----|------------|-------------|------------|-------------|------------|
| 301 | CTATGTGGCG | CGGTATTATC  | CCGTATTGAC | GCCGGGCAAG  | AGCAACTCGG |
|     | GATACACCGC | GCCATAATAG  | GGCATAACTG | CGGCCCGTTC  | TCGTTGAGCC |
| 351 | TCGCCGCATA | CACATTCTC   | AGAATGACTT | GGTTGAGTAC  | TCACCAGTCA |
|     | AGCGGCGTAT | GTGATAAGAG  | TCTTACTGAA | CCAATCATG   | AGTGGTCAGT |
| 401 | CAGAAAAGCA | TCTTACGGAT  | GGCATGACAG | TAAGAGAATT  | ATGCAGTGCT |
|     | GTCTTTTCGT | AGAATGCCCTA | CCGTACTGTC | ATTCTCTTAA  | TACGTCACGA |
| 451 | GCCATAACCA | TGAGTGATAA  | CACTGGGGCC | AACTTACTTC  | TGACAACGAT |
|     | CGGTATTGGT | ACTCACTATT  | GTGACGCCCG | TTGAATGAAG  | ACTGTTGCTA |
| 501 | CGGAGGACCG | AAGGAGCTAA  | CCGCTTTTTT | GCACAACATG  | GGGGATCATG |
|     | GCCTCCTGGC | TTCCCTCGATT | GGCGAAAAAA | CGTGTGTAC   | CCCCTAGTAC |
| 551 | TAACTCGCCT | TGATCGTTGG  | GAACCGGAGC | TGAATGAAGC  | CATACCAAAC |
|     | ATTGAGCGGA | ACTAGCAACC  | CTTGGCCTCG | ACTTACTTCG  | GTATGGTTTG |
| 601 | GACGAGCGTG | ACACCACGAT  | GCCTGTAGCA | ATGGCAACAA  | CGTTGCGCAA |
|     | CTGCTCGCAC | TGTGGTGCTA  | CGGACATCGT | TACCGTTGTT  | GCAACGCGTT |
| 651 | ACTATTAACT | GGCGAACTAC  | TTACTCTAGC | TTCCCCGGCAA | CAGTTAATAG |
|     | TGATAATTGA | CCGCTTGATG  | AATGAGATCG | AAGGGCCGTT  | GTCAATTATC |

**FIG. 35Z**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |            |            |            |             |             |
|------|------------|------------|------------|-------------|-------------|
| 701  | ACTGGATGGA | GGCGGATAAA | GTTGCAGGAC | CACTTCTGCG  | CTCGGCCCTT  |
|      | TGACCTACCT | CCGCCATTT  | CAACGTCCTG | GTGAAGACGC  | GAGCCGGAA   |
| 751  | CCGGCTGGCT | GGTTTATTGC | TGATAAATCT | GGAGCCGGTG  | AGCGTGGGTC  |
|      | GGCCGACCGA | CCAAATAACG | ACTATTTAGA | CCTCGGCCAC  | TCGCACCCAG  |
| 801  | TCGCGGTATC | ATTGCAGCAC | TGGGGCCAGA | TGGTAAGCCC  | TCCCCGTATCG |
|      | AGCGCCATAG | TAACGTCGTG | ACCCCGGTCT | ACCATTCCGG  | AGGGCATAGC  |
| 851  | TAGTTATCTA | CACGACGGGG | AGTCAGGCAA | CTATGGATGA  | ACGAAATAGA  |
|      | ATCAATAGAT | GTGCTGCCCC | TCAGTCCGTT | GATACCTACT  | TGCTTTATCT  |
| 901  | CAGATCGCTG | AGATAGGTGC | CTCACTGATT | AAGCATTGGG  | TAACTGTCAG  |
|      | GTCTAGCGAC | TCTATCCACG | GAGTGACTAA | TTTCGTAACCC | ATTGACAGTC  |
| 951  | ACCAAGTTTA | CTCATATATA | CTTTAGATTG | ATTTAAAACT  | TCATTTTTAA  |
|      | TGGTTCAAAT | GAGTATATAT | GAAATCTAAC | TAAATTTTGA  | AGTAAAAATT  |
| 1001 | TTTAAAGGA  | TCTAGGTGAA | GATCCTTTTT | GATAATCTCA  | TGACCAAAAT  |
|      | AAATTTTCCT | AGATCCACTT | CTAGGAAAAA | CTATTAGAGT  | ACTGGTTTTA  |
| 1051 | CCCTTAACGT | GAGTTTTCGT | TCCACTGAGC | GTCAGACCCC  | GTAGAAAAGA  |
|      | GGGAATTGCA | CTCAAAAGCA | AGTGACTCG  | CAGTCTGGGG  | CATCTTTTCT  |

**FIG. 35AA**

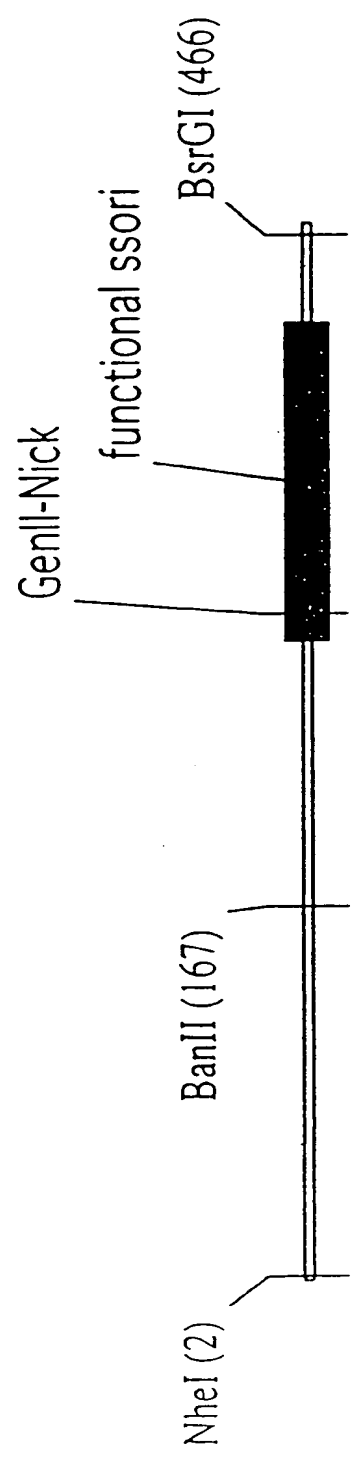
|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |            | FseI       | PacI       |
|------|------------|------------|------------|
| 1101 | TCAAAGGATC | TTCTTGAGAT | CCTTTTGGAT |
|      | AGTTTCCTAG | AAGAACTCTA | GGAAACTA   |
|      |            | TTACCGGCCG | GGGGGGGAA  |

|      |            |     |
|------|------------|-----|
| 1151 | AAATTAAGGG | GGG |
|      | TTAATTCCCC | CCC |

**FIG. 35BB**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| CRAFTSMAN | SUBCLASS  |



M11-II

470 bp

FIG. 35CC

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M11-II:

NheI

1 GCTAGCACGC GCCCTGTAGC GCGGCATTAA GCGCGGCGGG TGTGGTGGTT  
 CGATCGTGCG CCGGACATCG CCGCGTAATT CCGCGCGCCC ACACCACCAA

51 ACGCGCAGCG TGACCGCTAC ACTTGCCAGC GCCCTAGCGC CCGCTCCTTT  
 TCGCGGTCGC ACTGGCGATG TGAACGGTCG CCGGATCGCG GCGGAGGAAA

101 CGCTTTCTTC CCTTCCCTTC TCGCCACGTT CCGCGGCTTT CCCCCTCAAG  
 GCGAAAGAAG GGAAGGAAAG AGCGGTGCAA CCGGCCGAAA GGGCAGTTC

BanII

~~~~~

151 CTCTAAATCG GGGCTCCCT TTAGGGTTCC GATTAGTGC TTTACGGCAC
 GAGATTTAGC CCCCAGGGA AATCCCAAGG CTAAATCAGG AAATGCCGTG

201 CTCGACCCCA AAAAATTGA TTAGGGTGAT GGTCTCGTA GTGGGCCATC
 GAGCTGGGGT TTTTGTGAAT AATCCCACTA CCAAGAGCAT CACCCGGTAG

251 GCCCTGATAG ACGGTTTTC GCCCTTTGAC GTTGAGTCC ACGTTCCTTA
 CCGGACTATC TGCCAAAAG CCGGAAACTG CAACCTCAGG TGCAAGAAAT

FIG. 35DD

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

```
301  ATAGTGGACT CTTGTTCCAA ACTGGAACAA CACTCAACCC TATCTCGGTC
    TATCACCTGA GAACAAGTT TGACCTTGTT GTGAGTTGGG ATAGAGCCAG

351  TATTCTTTTG ATTTATAAGG GATTTTGCCG ATTTCCGGCCT ATTGGTTAAA
    ATAAGAAAAC TAAATATTCC CTAAACGGC TAAAGCCGA TAACCAATTT

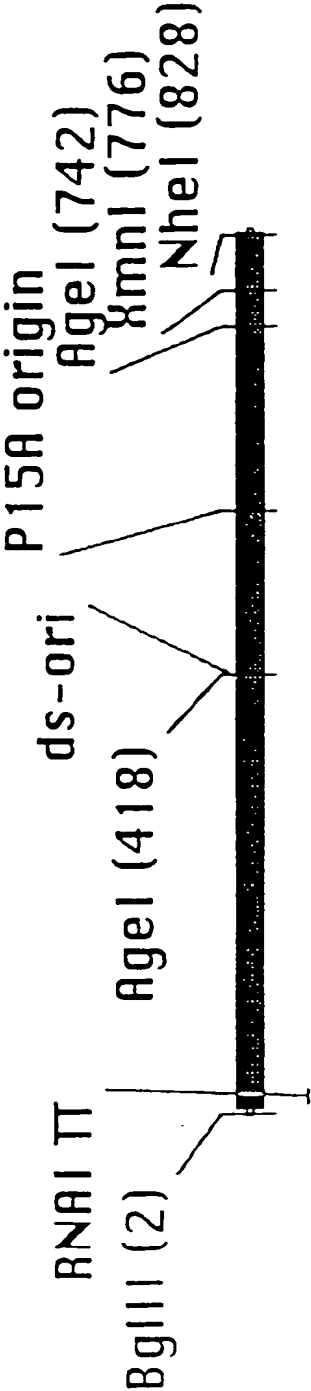
401  AAATGAGCTG ATTTAACAA AATTTAACG GAATTTTAAC AAAATATTAA
    TTTACTCGAC TAAATTGTTT TTAAATTGCG CTTAAAAATTG TTTTATAATT

          BsrGI
          ~~~~~

451  CGTTTACAAT TTCATGTACA
    GCAAATGTTA AAGTACATGT
```

FIG. 35EE

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		



M12
832 bp

FIG. 35FF

M 12:

BglII

~~~~~

|     |            |            |            |             |            |
|-----|------------|------------|------------|-------------|------------|
| 1   | AGATCTAATA | AGATGATCTT | CTTGAGATCG | TTTTGGTCTG  | CGCGTAATCT |
|     | TCTAGATTAT | TCTACTAGAA | GAACTCTAGC | AAAACCAGAC  | GCGCATTAGA |
| 51  | CTTGCTCTGA | AAACGAAAAA | ACCGCCTTGC | AGGGCGGTTT  | TTCGTAGGTT |
|     | GAACGAGACT | TTTGCTTTTT | TGGCGAACG  | TCCCGCCAAA  | AAGCATCCAA |
| 101 | CTCTGAGCTA | CCAACTCTTT | GAACCGAGGT | AAC TGGCTTG | GAGAGCGCA  |
|     | GAGACTCGAT | GGTTGAGAAA | CTTGGCTCCA | TTGACCGAAC  | CTCCTCGCGT |
| 151 | GTCACATAAA | CTTGTCCTTT | CAGTTTAGCC | TTAACCGGCG  | CATGACTTCA |
|     | CAGTGATTTT | GAACAGGAAA | GTCAAATCGG | AATTGGCCGC  | GTACTGAAGT |
| 201 | AGACTAACTC | CTCTAAATCA | ATTACCAGTG | GCTGCTGCCA  | GTGGTGCTTT |
|     | TCTGATTGAG | GAGATTTAGT | TAATGGTCAC | CGACGACGGT  | CACCACGAAA |
| 251 | TGCATGTCTT | TCCGGGTTGG | ACTCAAGACG | ATAGTTACCG  | GATAAGGCGC |
|     | ACGTACAGAA | AGGCCCCAAC | TGAGTTCTGC | TATCAATGGC  | CTATTCCCGC |
| 301 | AGCGGTCGGA | CTGAACGGGG | GGTTCGTGCA | TACAGTCCAG  | CTTGGAGCGA |
|     | TCGCCAGCCT | GACTTGCCCC | CCAAGCACGT | ATGTCAGGTC  | GAACCTCGCT |

FIG. 35GG

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

351 ACTGCCCTACC CGGAACCTGAG TGTCAGGCGT GGAATGAGAC AAACGCGGCC  
TGACGGATGG GCCTTGACTC ACAGTCCGCA CCTTACTCTG TTGCGCGCCG

AgeI

~~~~~

401 ATAACAGCGG AATGACACCG GTAAACCGAA AGGCAGGAAC AGGAGAGCGC
TATTGTCCGC TTA CTGTGGC CATTGGCTT TCCGTCCCTG TCCTCTCGCG

451 AGGAGGGAGC CGCCAGGGG AAACGCCCTG TATCTTTATA GTCCCTGTCGG
TCCTCCCTCG GCGTCCCCC TTGCGGACC ATAGAAATAT CAGGACAGCC

501 GTTTCGCCAC CACTGATTG AGCGTCAGAT TTCGTGATGC TTGTCAGGGG
CAAAGCGGTG GTGACTAAAC TCGCAGTCTA AAGCACTACG AACAGTCCCC

551 GCGGGAGCCT ATGGAAAAAC GGCTTTGCCG CGGCCCTCTC ACTTCCCCTGT
CCGCCCTCGA TACCTTTTG CCGAAACGGC GCCGGGAGAG TGAAGGGACA

601 TAAGTATCTT CCTGGCATCT TCCAGGAAAT CTCCGCCCCG TTCGTAAGCC
ATTCATAGAA GGACCGTAGA AGGTCCCTTA GAGCGGGGC AAGCATTCGG

651 ATTTCCGCTC GCCGCAGTCG AACGACCGAG CGTAGCGAGT CAGTGAGCGA
TAAAGGCGAG CGCGTCAGC TTGCTGGCTC GCATCGCTCA GTCACCTCGCT

FIG. 35HH

APPROVED	O.G. FIG.
BY	CLASS SUBCLASS
DRAFTSMAN	

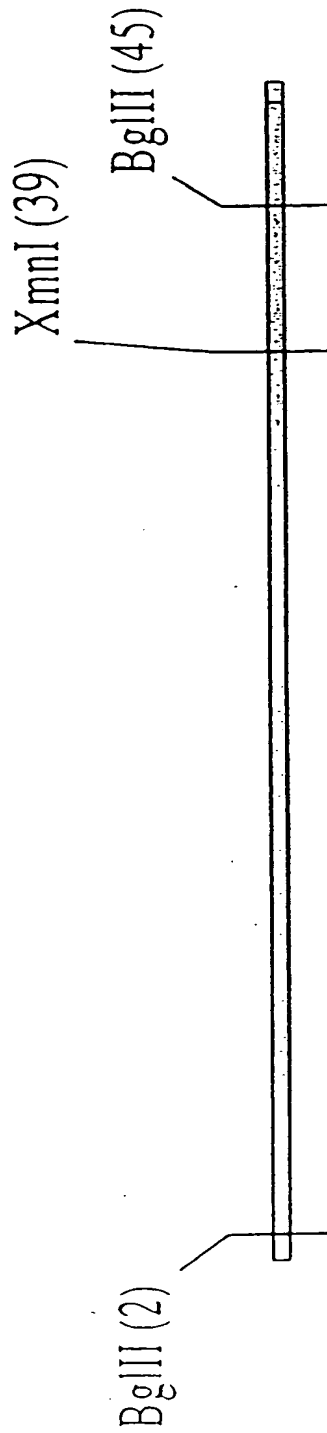
AgeI
 ~~~~~  
 701 GGAAGCGGAA TATATCCTGT ATCACATATT CTGCTGACGC ACCGGTGCAG  
 CCTTCGCCCTT ATATAGGACA TAGTGTATAA GACGACTGCG TGGCCACGTC

XmnI  
 ~~~~~  
 751 CCTTTTCTTCT CCTGCCACAT GAAGCACTTC ACTGACACCC TCATCAGTGC
 GGAAAAAGA GGACGGTGTA CTCGTGAAG TGACTGTGGG AGTAGTCACG

NheI
 ~~~~~  
 801 CAACATAGTA AGCCAGTATA CACTCCGCTA GC  
 GTGTATCAT TCGGTCATAT GTGAGGCGAT CG

**FIG. 35II**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M13  
49 bp

**FIG. 35JJ**

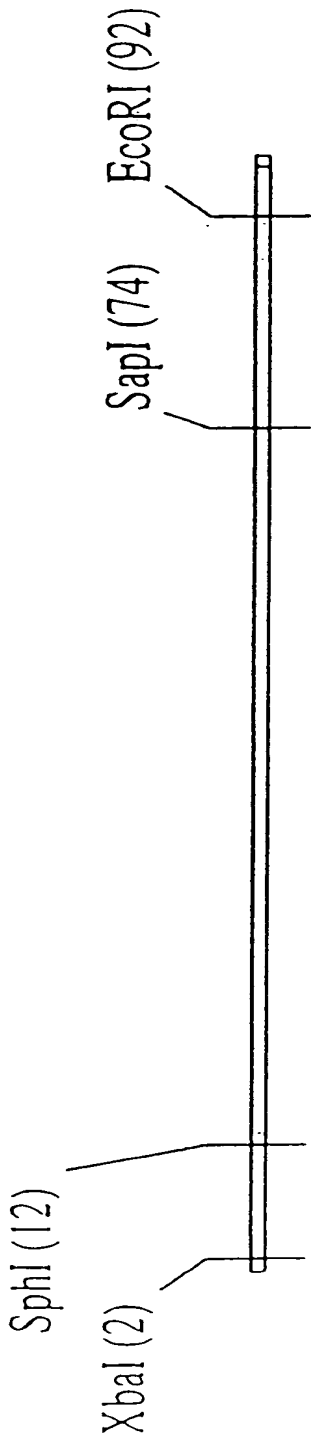
|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 13:

|   |                                                       |       |       |
|---|-------------------------------------------------------|-------|-------|
|   | BglII                                                 | XmnI  | BglII |
|   | -----                                                 | ----- | ----- |
| 1 | AGATCTCATA ACTTCGTATA ATGTATGCTA TACGAAGTTA TTCAGATCT |       |       |
|   | TCTAGAGTAT TGAAGCATAT TACATACGAT ATGCTTCAAT AAGTCTAGA |       |       |

**FIG. 35KK**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M19  
96 bp  
**FIG. 35LL**



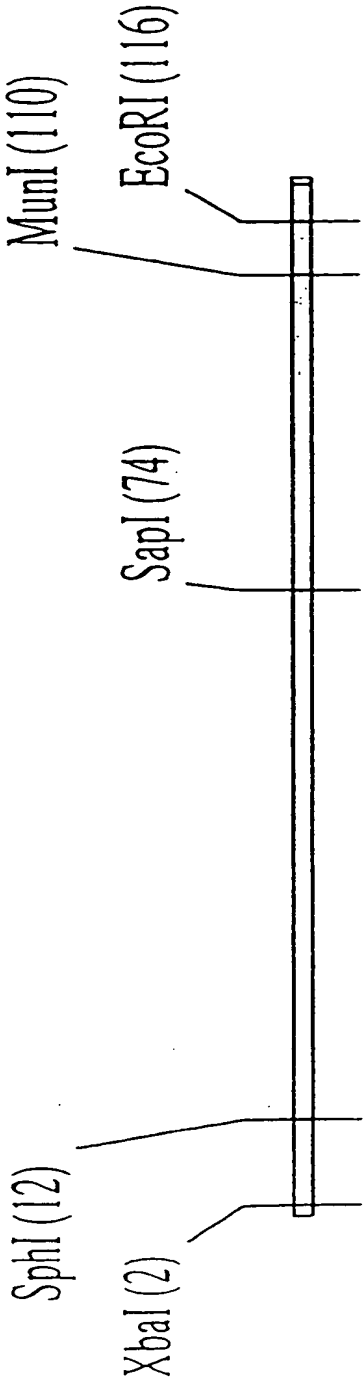
|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 19:

|    |            |             |            |            |            |
|----|------------|-------------|------------|------------|------------|
|    | XbaI       | SphI        |            |            |            |
|    | -----      | -----       |            |            |            |
| 1  | TCTAGAGCAT | CCGTAGGAGA  | AAATAAAATG | AAACAAAGCA | CTATTGCAC  |
|    | AGATCTCGTA | CGCATCCCTCT | TTTATTTTAC | TTTGTTTCGT | GATAACGTGA |
|    |            |             |            |            |            |
|    |            | SapI        |            | ECORI      |            |
|    |            | -----       |            | -----      |            |
| 51 | GGCACTCTTA | CCGTTGCTCT  | TCACCCCTGT | TACCAAAGCC | GAATTC     |
|    | CCGTGAGAA  | GGCAACGAGA  | AGTGGGGACA | ATGGTTTCGG | CTTAAG     |

**FIG. 35MM**

|           |                |
|-----------|----------------|
| APPROVED  | O.G. FIG.      |
| BY        | CLASS SUBCLASS |
| DRAFTSMAN |                |



M20  
120 bp

**FIG. 35NN**

|           |          |          |
|-----------|----------|----------|
| APPROVED  | D.G.FIG. |          |
| BY        | CLASS    | SUBCLASS |
| BRAFTSMAN |          |          |

M 20:

XbaI SphI

-----

1 TCTAGAGCAT GCGTAGGAGA AAATAAATG AAACAAAGCA CTATTGCACT  
 AGATCTCGTA CGCATCCTCT TTTATTTTAC TTTGTTTCGT GATAACGTGA

SapI

-----

51 GGCACTCTTA CCGTTGCTCT TCACCCCTGT TACCAAAGCC GACTACAAAG  
 CCGTGAGAAAT GGCAACGAGA AGTGGGGACA ATGGTTTCGG CTGATGTTTC

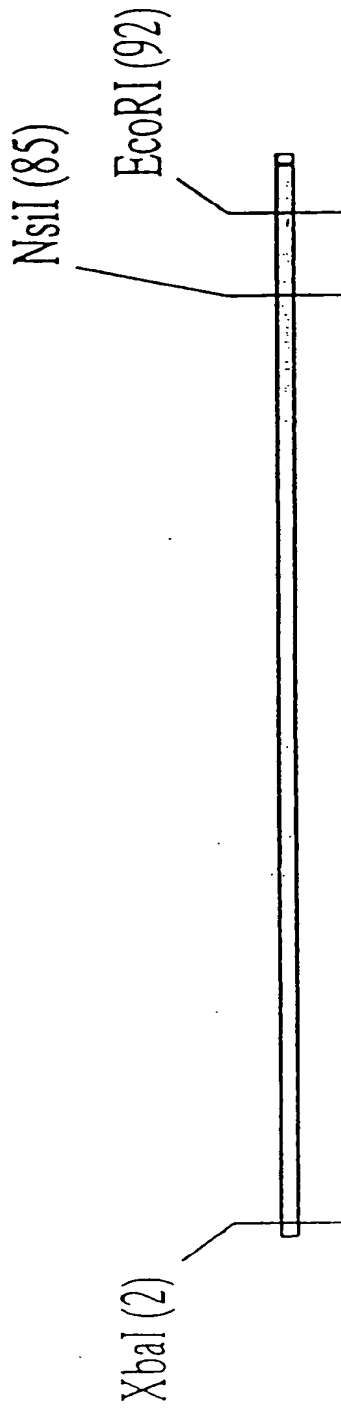
MunI EcoRI

-----

101 ATGAAGTGCA ATTGGAATTC  
 TACTTCACGT TAACCTTAAG

FIG. 3500

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



M21  
96 bp

**FIG. 35PP**

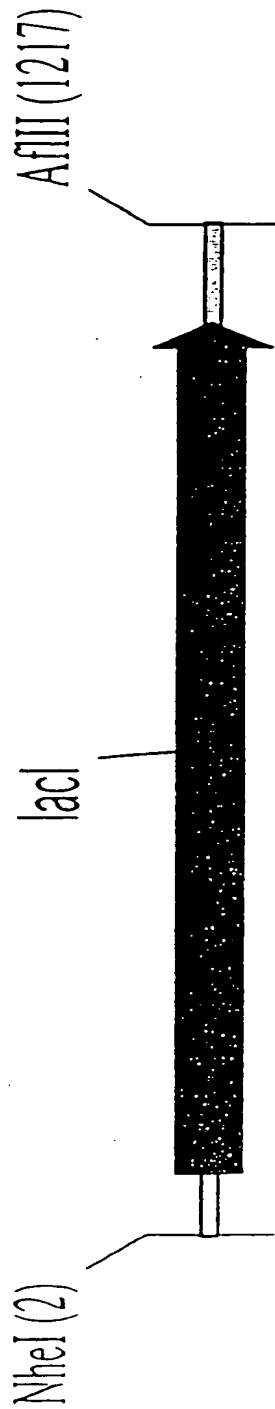
|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

M 21:

|    |            |            |             |
|----|------------|------------|-------------|
|    | XbaI       |            |             |
|    | -----      |            |             |
| 1  | TCTAGAGGTT | GAGGTGATTT | TATGAAAAAG  |
|    | AGATCTCCAA | CTCCACTAAA | ATACTTTTTC  |
|    |            |            | AAATATCGCAT |
|    |            |            | TTATAGCGTA  |
|    |            |            | AAGAAGAACG  |
|    |            |            | TTCTTCTTGC  |
| 51 | ATCTATGTTC | GTTTTTTCTA | TTGCTACAAA  |
|    | TAGATACAAG | CAAAAAGAT  | AACGATGTTT  |
|    |            |            | ACGTATGCCA  |
|    |            |            | CTTAAG      |
|    |            | NsiI       | ECORI       |
|    |            | -----      | -----       |

FIG. 35QQ

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| CRAFTSMAN |           |          |



**M41**  
**1221 bp**  
**FIG. 35RR**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| GRAFTSHAH | SUBCLASS  |

M 41:

NheI

```

-----
1  GCTAGCATCG AATGGCGCAA AACCTTTCGC GGTATGGCAT GATAGCGCCC
   CGATCGTAGC TTACCGCGTT TTGGAAGCG CCATACCGTA CTATCGCGGG

51  GGAAGAGAGT CAATTCAGGG TGGTGAATGT GAAACCAGTA ACGTTATACG
   CCTTCCTCTCA GTTAAGTCCC ACCACTTACA CTTTGGTCAT TGCAATATGC

101 ATGTCGCAGA GTATGCCGGT GTCTCTTATC AGACCGTTTC CCGCGTGGTG
   TACAGCGTCT CATACGGCCA CAGAGAATAG TCTGGCAAAG GCGCACCCAC

151 AACCAGGCCA GCCACGTTC TCGAATAACG CGGGAAAAG TGAAGCGGC
   TTGGTCCGGT CCGTGCAAAG ACGCTTTTGC GCCCTTTTC ACCTTCGCCG

201 GATGGCGGAG CTGAATTACA TTCCTAACCG CGTGGCACAA CAACTGGCGG
   CTACCGCCTC GACTTAATGT AAGGATTGGC GCACCGTGTT GTTGACCGCC

251 GCAAACAGTC GTTGCTGATT GGCGTTGCCA CCTCCAGTCT GGCCCTGCAC
   CGTTTGTCAG CAACGACTAA CCGCAACGGT GGAGGTCAGA CCGGGACGTG

301 GCGCCGTCGC AAATTGTGC GCGGATTAA TCTCGCGCCG ATCAACTGGG
   CGCGGCAGCG TTTAACAGCG CCGCTAATT AGAGCGCGGC TAGTTGACCC
  
```

FIG. 35SS

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

|     |             |            |            |            |             |
|-----|-------------|------------|------------|------------|-------------|
| 351 | TGCCAGCGTG  | GTCGTGTCGA | TGGTAGAAGG | AAGCGGCGTC | GAAGCCTGTA  |
|     | ACGGTCGCAC  | CAGCACAGCT | ACCATCTTGC | TTCGCCGCAG | CTTCGGACAT  |
| 401 | AAGCGGCGGT  | GCACAACTCT | CTCGCGCAAC | GTGTCAGTGG | GCTGATTATT  |
|     | TTCGCCGCCA  | CGTGTTAGAA | GAGCGCGTTG | CACAGTCACC | CGACTAATAA  |
| 451 | AACTATCCGC  | TGGATGACCA | GGATGCTATT | GCTGTGGAAG | CTGCCCTGCAC |
|     | TTGATAGGCG  | ACCTACTGGT | CCTACGATAA | CGACACCTTC | GACGGACGTG  |
| 501 | TAATGTTCCG  | GCGTTATTTC | TTGATGTCTC | TGACCAGACA | CCCATCAACA  |
|     | ATTACAAGGC  | CGCAATAAAG | AACTACAGAG | ACTGGTCTGT | GGTAGTTGT   |
| 551 | GTATTATTTT  | CTCCCATGAG | GACGGTACGC | GACTGGGCGT | GGAGCATCTG  |
|     | CATAATAAAA  | GAGGTACTC  | CTGCCATGCG | CTGACCCGCA | CCTCGTAGAC  |
| 601 | GTCGCATTGG  | GCCACCAGCA | AATCGCGCTG | TTAGCTGGCC | CATTAAGTTC  |
|     | CAGCGTAACC  | CGGTGGTCGT | TTAGCGCGAC | AATCGACCGG | GTAATTCAAG  |
| 651 | TGCTCGGCG   | CGTCTGCGTC | TGGCTGGCTG | GCATAAATAT | CTCACTCGCA  |
|     | ACAGAGCCGC  | GCAGACGCAG | ACCGACCGAC | CGTATTTATA | GAGTGAGCGT  |
| 701 | ATCAAATTCA  | GCCGATAGCG | GAACGGGAAG | GCGACTGGAG | TGCCATGTCC  |
|     | TAGTTTAAAGT | CGGCTATCGC | CTTGCCCTTC | CGCTGACCTC | ACGGTACAGG  |

**FIG. 35TT**



|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |             |             |             |             |             |
|------|-------------|-------------|-------------|-------------|-------------|
| 751  | GGTTTTCAAC  | AAACCATGCA  | AATGCTGAAT  | GAGGGCATCG  | TTCCCCACTGC |
|      | CCAAAAGTTG  | TTTGGTACGT  | TTACGACTTA  | CTCCCCGTAGC | AAGGGTGACG  |
| 801  | GATGCTGGTT  | GCCAACGATC  | AGATGGCGCT  | GGCGGCAATG  | CGTGCCATTA  |
|      | CTACGACCAA  | CGGTGCTAG   | TCTACCGCGA  | CCCGCGTTAC  | GCACGGTAAT  |
| 851  | CCGAGTCCGG  | GCTGCGCGTT  | GGTGCGGACA  | TCTCGGTAGT  | GGGATACGAC  |
|      | GGCTCAGGCC  | CGACGCGCAA  | CCACGCCCTGT | AGAGCCATCA  | CCCTATGCTG  |
| 901  | GATACCGAGG  | ACAGCTCATG  | TTATATCCCG  | CCGCTGACCA  | CCATCAAACA  |
|      | CTATGGCTCC  | TGTCGAGTAC  | AATATAGGCG  | GGCGACTGGT  | GGTAGTTTGT  |
| 951  | GGATTTTCGC  | CTGCTGGGGC  | AAACCAGCGT  | GGACCGCTTG  | CTGCAACTCT  |
|      | CCTAAAAGCG  | GACGACCCCG  | TTTGCTCGCA  | CCTGGCGAAC  | GACGTTGAGA  |
| 1001 | CTCAGGGCCA  | GGCGGTGAAG  | GGCAATCAGC  | TGTTGCCCCGT | CTCACTGGTG  |
|      | GAGTCCCGGT  | CCGCCACTTC  | CCGTAGTCG   | ACAACGGGCA  | GAGTGACCAC  |
| 1051 | AAAAGAAAAA  | CCACCCCTGGC | TCCCAATACG  | CAAACCGCCT  | CTCCCCGCGC  |
|      | TTTTCCTTTT  | GGTGGGACCG  | AGGGTTATGC  | GTTTGGCGGA  | GAGGGGCGCG  |
| 1101 | GTTGGCCGAT  | TCACTGATGC  | AGCTGGCACG  | ACAGGTTTCC  | CGACTGGAAA  |
|      | CAACCCGGCTA | AGTGACTACG  | TCGACCGTGC  | TGTCCAAAGG  | GCTGACCTTT  |

**FIG. 35UU**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

1151 GCGGGCAGTG AGGCTACCCG ATAAAAGCGG CTTCCCTGACA GGAGGCCGTT  
CGCCCCGTCAC TCCGATGGGC TATTTTCGCC GAAGGACTGT CCTCCGGCAA

AflII

~~~~~

1201 TTGTTTGGCA GCCCACTTAA G
AACAAAACGT CGGTGAATT C

FIG. 35V

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

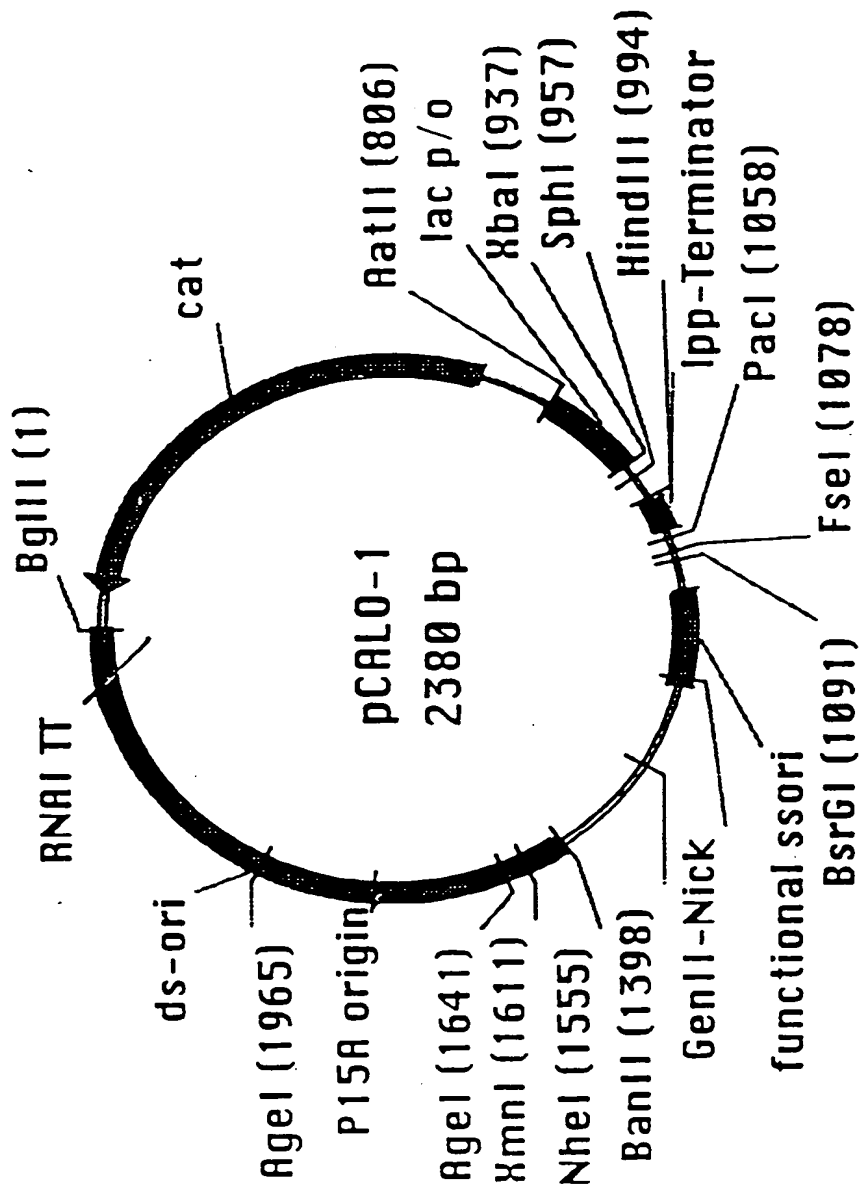


FIG. 35WW

pCALO-1:

BglII

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|     |            |             |            |             |             |
|-----|------------|-------------|------------|-------------|-------------|
| 1   | GATCTAGCAC | CAGGCGTTTA  | AGGGACCAA  | TAACTGCCCTT | AAAAAATTA   |
|     | CTAGATCGTG | GTCCGCAAAAT | TCCCGTGGTT | ATTGACGGAA  | TTTTTTTAAAT |
| 51  | CGCCCCGCC  | TGCCACTCAT  | CGCAGTACTG | TTGTAATTCA  | TTAAGCATTC  |
|     | GCGGGGCGGG | ACGGTGAGTA  | GCGTCATGAC | AACATTAAAGT | AATTCGTAAG  |
| 101 | TGCCGACATG | GAAGCCATCA  | CAAACGGCAT | GATGAACCTG  | AATCGCCAGC  |
|     | ACGGCTGTAC | CTTCGGTAGT  | GTTTGCCGTA | CTACTTGGAC  | TTAGCGGTCG  |
| 151 | GGCATCAGCA | CCTTGTCGCC  | TTGCGTATAA | TATTTGCCCA  | TAGTGAAAAC  |
|     | CCGTAGTCGT | GGAACAGCGG  | AACGCATATT | ATAAACGGGT  | ATCACCTTTG  |
| 201 | GGGGGCGAAG | AAGTTGTCCA  | TATTGGCTAC | GTTTAAATCA  | AAACTGGTGA  |
|     | CCCCCGCTTC | TTCAACAGGT  | ATAACCGATG | CAAATTTAGT  | TTTGACCCACT |
| 251 | AACTCACCCA | GGATTGGCT   | GAGACGAAA  | ACATATTCTC  | AATAAACCCCT |
|     | TTGAGTGGGT | CCCTAACCGA  | CTCTGCTTTT | TGTATAAGAG  | TTATTTGGGA  |
| 301 | TTAGGGAAT  | AGGCCAGGTT  | TTCACCGTAA | CACGCCACAT  | CTTGCGAATA  |
|     | AATCCCTTTA | TCCGGTCCAA  | AAGTGGCATT | GTGCGGTGTA  | GAACGCTTAT  |

**FIG. 35XX**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | 0.6. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | D.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSHAH |           |          |

|     |                                                                                                                   |
|-----|-------------------------------------------------------------------------------------------------------------------|
| 351 | TATGTGTAGA AACTGCCGGA AATCGTCGTG GTATTCATC CAGAGCGATG<br>ATACACATCT TTGACGGCCT TTAGCAGCAC CATAAGTGAG GTCTCGCTAC   |
| 401 | AAAACGTTTC AGTTTGCTCA TGGAAAACGG TGTAACAAGG GTGAACACTA<br>TTTTGCAAAG TCAAACGAGT ACCTTTGGCC ACATTGTTCC CACTTGTGAT  |
| 451 | TCCCATATCA CCAGCTCACC GTCTTTCATT GCCATACGGA ACTCCGGGTG<br>AGGTATAGT GGTGAGTGG CAGAAAGTAA CGGTATGCCT TGAGGCCCCAC   |
| 501 | AGCATTCATC AGCGGGGCAA GAATGTGAAT AAAGGCCGGA TAAAAC TTGT<br>TCGTAAGTAG TCCGCCCGTT CTTACACTTA TTTCCGGCCT ATTTTGAACA |
| 551 | GCTTATTTT CTTACGGTC TTTAAAAAGG CCGTAATATC CAGCTGAACG<br>CGAATAAAAA GAAATGCCAG AAATTTTCC GCATTATAG GTCGACTTGC      |
| 601 | GTCTGGTTAT AGGTACATTG AGCAACTGAC TGAAATGCCT CAAAATGTTT<br>CAGACCAATA TCCATGTAAC TCGTTGACTG ACTTTACGGA GTTTTACAAG  |
| 651 | TTTACGATGC CATTGGGATA TATCAACGGT GGTATATCCA GTGATTTTTT<br>AAATGCTACG GTAAACCCTAT ATAGTTGCCA CCATATAGGT CACTAAAAAA |
| 701 | TCCTCCATTT AGCTTCCCTTA GCTCCTGAAA ATCTCGATAA CTCAAAAAAT<br>AGAGGTAAAA TCGAAGGAAT CGAGGACTTT TAGAGCTATT GAGTTTTTAA |

FIG. 35YY

|           |                |
|-----------|----------------|
| APPROVED  | O.G. FIG.      |
| BY        | CLASS SUBCLASS |
| DRAFTSMAN |                |

```

751  ACGCCCGGTA GTGATCTTAT TTCATTATGG TGAAAGTTGG AACCTCACCC
      TCGGGGCCAT CACTAGAATA AAGTAATACC ACTTTCAACC TTGGAGTGGG

      AatII
      ~~~~~
801 GACGTCTAAT GTGAGTTAGC TCACTCATTA GGCACCCCCAG GCTTTACACT
 CTGCAGATTA CACTCAATCG AGTGAGTAAT CCGTGGGGTC CGAAATGTGA

851 TTATGCTTCC GGCTCGTATG TTGTGTGGAA TTGTGAGCGG ATAACAATTT
 AATACGAAGG CCGAGCATAC AACACACCTT AACACTCGCC TATTGTTAA

 XbaI
      ~~~~~
901  CACACAGGAA ACAGCTATGA CCATGATTAC GAATTTCTAG ACCCCCCCCC
      GTGTGTCCTT TGTCGATACT GGTACTAATG CTTAAAGATC TGGGGGGGGG

      SphI
      ~~~~~
 HindIII
      ~~~~~
951  CGCATGCCAT AACTTCGTAT AATGTACGCT ATACGAAGTT ATAAGCTTGA
      GCGTACGGTA TTGAAGCATA TTACATGCGA TATGCTTCAA TATTCGAACT

1001 CCTGTGAAGT GAAAATGGC GCAGATTGTG CGACATTTTT TTTGTCTGCC
      GGACACTTCA CTTTTTACCG CGCTAACAC GCTGTAAAAA AACAGACGG
  
```

**FIG. 35ZZ**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      | PacI                  | FseI       | BsrGI                  |
|------|-----------------------|------------|------------------------|
|      | ~~~~~                 | ~~~~~      | ~~~~~                  |
| 1051 | GTTTAATTAA AGGGGGGGG  | GGCCGGCCT  | GGGGGGGGT GTACATGAAA   |
|      | CAAAATTAATT TCCCCCCCC | CCCGCCCGGA | CCCCCCCCCA CATGTACTTT  |
| 1101 | TTGTAAACGT TAATATTTG  | TTAAATTCG  | CGTTAAATTT TTGTTAAATC  |
|      | AACATTTGCA ATTATAAAAC | AATTTAAGC  | GCAATTTAAA AACAATTTAG  |
| 1151 | AGCTCATTTT TTAACCAATA | GGCCGAAATC | GGCAAAATCC CTTATAAATC  |
|      | TCGAGTAAAA AATTGGTTAT | CCGGCTTTAG | CCGTTTTTAGG GAATATTTAG |
| 1201 | AAAAGAATAG ACCGAGATAG | GGTTGAGTGT | TGTTCCAGTT TGGACAAGA   |
|      | TTTTCTTATC TGGCTCTATC | CCAATCACA  | ACAAGGTCAA ACCTTGTTCT  |
| 1251 | GTCCACTATT AAAGAACGTG | GACTCCAACG | TCAAAGGGCG AAAAACCCTC  |
|      | CAGGTGATAA TTTCTTGCAC | CTGAGGTTGC | AGTTTCCCGC TTTTGGCAG   |
| 1301 | TATCAGGGCG ATGGCCCACT | ACGAGAACCA | TCACCCCTAAT CAAGTTTTTT |
|      | ATAGTCCCGC TACCGGGTGA | TGCTCTTGGT | AGTGGGATTA GTTCAAAAAA  |
|      |                       |            |                        |
|      |                       |            | BanII                  |
|      |                       |            | ~~~~~                  |
| 1351 | GGGGTCGAGG TGCCGTAAAG | CACTAAATCG | GAACCCCTAAA GGGAGCCCCC |
|      | CCCCAGCTCC ACGGCATTTC | GTGATTTAGC | CTTGGGATTT CCTTCGGGGG  |

FIG. 35AAA

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```

1401  GATTAGAGC TTGACGGGGA AAGCCGGCGA ACGTGGCGAG AAAGGAAGGG
      CTAAATCTCG AACTGCCCCCT TTCGGCCGCT TGCACCGCTC TTTCCCTTCCC

1451  AAGAAAGCGA AAGGAGCGGG CGCTAGGGCG CTGGCAAGTG TAGCGGTCAC
      TTCTTTTCGCT TTCCCTCGCCC GCGATCCCGC GACCGTTCAC ATCGCCAGTG

1501  GCTGCCGCGTA ACCACCACAC CCGCCGCGCT TAATGCGCCG CTACAGGGCG
      CGACGCGCAT TGGTGTGTG GCGGCGCGA ATTACGCGGC GATGTCCCCG

      NheI
      ~~~~~

1551 CGTGCTAGCG GAGTGATAC TGGCTTACTA TGTTGGCACT GATGAGGGTG
 GCACGATCGC CTCACATATG ACCGAATGAT ACAACCGTGA CTACTCCCCAC

 XmnI
      ~~~~~

1601  TCAGTGAAGT GCTTCATGTG GCAGGAGAAA AAAGGCTGCA CCGTGCGTC
      AGTCACTTCA CGAAGTACAC CGTCCTCTTT TTTCCGACGT GGCCACGCAG

1651  AGCAGAATAT GTGATACAGG ATATATTCCG CTTCCCTCGCT CACTGACTCG
      TCGTCTTATA CACTATGTCC TATATAAGGC GAAGGAGCGA GTGACTGAGC

1701  CTACGCTCGG TCGTTCGACT GCGGCGAGCG GAAATGGCTT ACGAACGGGG
  
```

**FIG. 35BBB**



|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|               |            |              |            |            |             |
|---------------|------------|--------------|------------|------------|-------------|
|               | GATGCGAGCC | AGCAAGCTGA   | CGCCGCTCGC | CTTTACCGAA | TGCTTGCCCC  |
| 1751          | CGGAGATTTC | CTGGAAGATG   | CCAGGAAGAT | ACTTAACAGG | GAAGTGAGAG  |
|               | GCCTCTAAAG | GACCTTCTAC   | GGTCCTTCTA | TGAATTGTCC | CTTCACTCTC  |
| 1801          | GGCCGCGGCA | AAGCCGTTT    | TCCATAGGCT | CCGCCCCCCT | GACAAGCATC  |
|               | CCGGCGCCGT | TTCGGCAAAA   | AGGTATCCGA | GGCGGGGGA  | CTGTTCGTAG  |
| 1851          | ACGAAATCTG | ACGCTCAAAT   | CAGTGGTGGC | GAAACCCGAC | AGGACTATAA  |
|               | TGCTTTAGAC | TGCGAGTTTA   | GTCACCACCG | CTTTGGGCTG | TCCTGATATT  |
| 1901          | AGATACCAGG | CGTTTCCCCC   | TGGCGGCTCC | CTCCTGCGCT | CTCCTGTTCC  |
|               | TCTATGGTCC | GCAAAGGGGG   | ACCGCCGAGG | GAGGACGCGA | GAGGACAAGG  |
| AgeI<br>~~~~~ |            |              |            |            |             |
| 1951          | TGCCTTTCGG | TTTACC GG TG | TCATTCCGCT | GTTATGGCCG | CGTTTGCTC   |
|               | ACGGAAAGCC | AAATGGCCAC   | AGTAAGGCCA | CAATACCCGC | GCAAAACAGAG |
| 2001          | ATTCCACGCC | TGACACTCAG   | TTCCGGGTAG | GCAGTTCGCT | CCAAGCTGGA  |
|               | TAAGGTGCGG | ACTGTAGTC    | AAGGCCCATC | CGTCAAGCGA | GGTTCGACCT  |
| 2051          | CTGTATGCAC | GAACCCCCCG   | TTCAGTCCGA | CCGCTGCGCC | TTATCCGGTA  |
|               | GACATACGTG | CTTGGGGGGC   | AAGTCAGGCT | GGCGACGCGG | AATAGGCCAT  |

**FIG. 35CCC**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

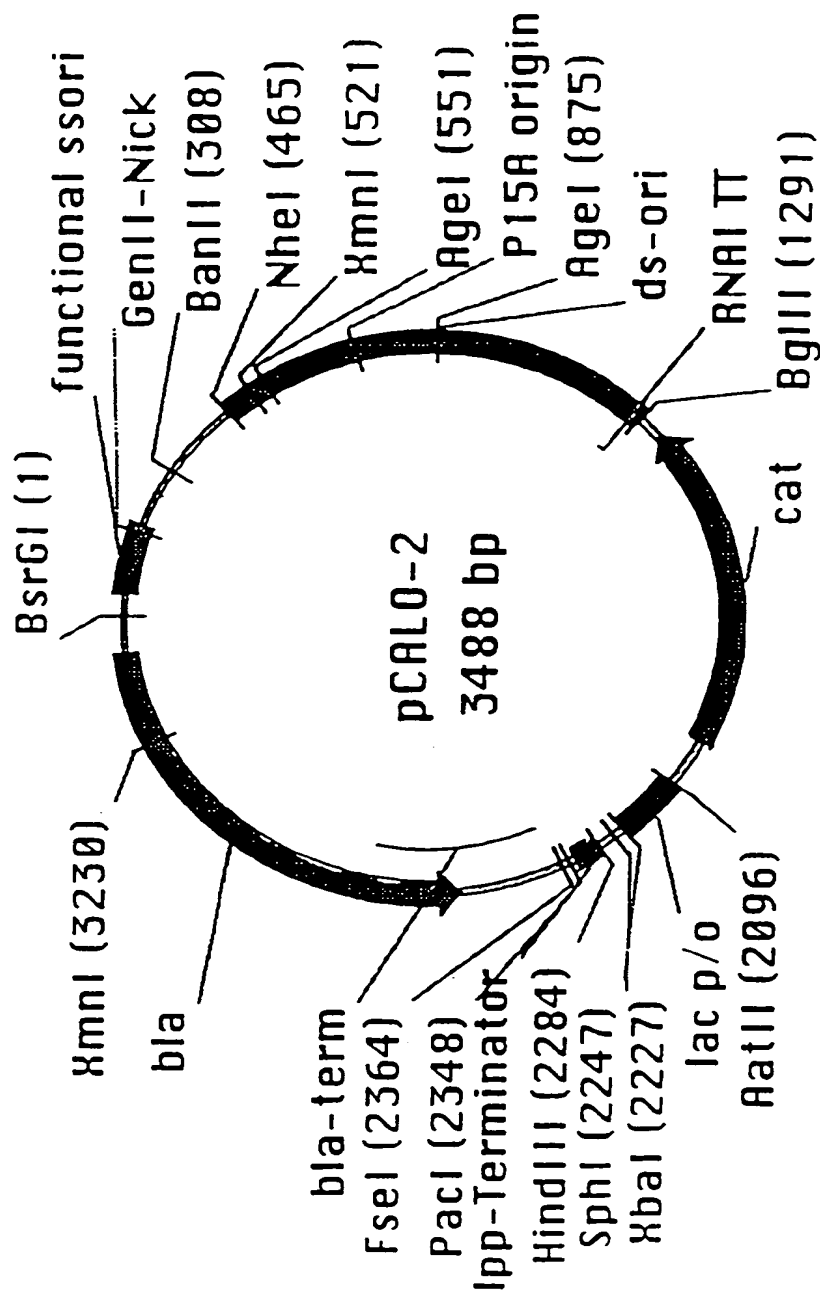
|      |            |            |             |            |            |
|------|------------|------------|-------------|------------|------------|
| 2101 | ACTATCGTCT | TGAGTCCAAC | CCGGAAGAC   | ATGCAAAAGC | ACCACTGGCA |
|      | TGATAGCAGA | ACTCAGGTTG | GCCCTTTCTG  | TACGTTTTCG | TGGTGACCGT |
| 2151 | GCAGCCACTG | GTAATTGATT | TAGAGGAGTT  | AGTCTTGAAG | TCATGCGCCG |
|      | CGTCGGTGAC | CATTAACTAA | ATCTCCTCAA  | TCAGAACTTC | AGTACGCGGC |
| 2201 | GTTAAGGCTA | AACTGAAAGG | ACAAGTTTAA  | GTGACTGCGC | TCCTCCAAGC |
|      | CAATTCCGAT | TTGACTTTCC | TGTTCAAAAT  | CACTGACGCG | AGGAGGTTCT |
| 2251 | CAGTTACCTC | GGTTCAAAGA | GTTGGTAGCT  | CAGAGAACCT | ACGAAAAACC |
|      | GTCAATGGAG | CCAAGTTTCT | CAACCATCGA  | GTCTCTTGGG | TGCTTTTGG  |
| 2301 | GCCCTGCAAG | GCGGTTTTTT | CGTTTTTCAGA | GCAAGAGATT | ACGCGCAGAC |
|      | CGGGACGTTT | CGCCAAAAAA | GCAAAAGTCT  | CGTTCTCTAA | TGCGCGTCTG |

BglII

|      |            |            |            |
|------|------------|------------|------------|
| 2351 | CAAAACGATC | TCAAGAAGAT | CATCTTATTA |
|      | GTTTGGCTAG | AGTTCTTCTA | GTAGAATAAT |

**FIG. 35DDDD**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |



**FIG. 35EEE**

|           |           |          |  |
|-----------|-----------|----------|--|
| APPROVED  | O.G. FIG. |          |  |
| BY        | CLASS     | SUBCLASS |  |
| DRAFTSMAN |           |          |  |

pCALO-2:

BsrGI

~~~~~

1 GTACATGAAA TTGTAAACGT TAATATTTTG TTAAAAATTCG CGTTAAATTT
CATGTACTTT AACATTGCA ATTATAAAC AATTTAAGC GCAATTTAAA

51 TTGTTAAATC AGCTCATTTT TTAACCAATA GGCCGAAATC GGCAAAATCC
AACAAATTTAG TCGAGTAAA AATTGGTTAT CCGGCTTAG CCGTTTTAGG

101 CTTATAAATC AAAAGAATAG ACCGAGATAG GGTTGAGTGT TGTTCCAGTT
GAATATTTAG TTTTCTTATC TGGCTCTATC CCAACTCACA ACAAGGTCAA

151 TGGAACAAGA GTCCACTATT AAAGAACGTG GACTCCAACG TCAAAGGGCG
ACCTTGTTCT CAGGTGATAA TTTCTTGAC CTGAGGTGC AGTTTCCCGC

201 AAAAACCGTC TATCAGGGCG ATGGCCCACT ACGAGAACCA TCACCCCTAAT
TTTTTGGCAG ATAGTCCCGC TACCGGGTGA TGCTCTTGGT AGTGGGATTA

251 CAAGTTTTTT GGGGTCGAGG TGCCGTAAAG CACTAAATCG GAACCCATAA
GTTCAAAAAA CCCCAGCTCC ACGGCATTTC GTGATTAGC CTTGGGATTT

BanII

~~~~~

301 GGGAGCCCC GATTAGAGC TTGACGGGGA AAGCCGGCGA ACGTGGCGAG

**FIG. 35FFF**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

```
CCCTCGGGG CTAAATCTCG AACTGCCCCCT TTCGGCCCGCT TGCACCGCTC

351 AAAGGAAGGG AAGAAAGCGA AAGAGCGGG CGCTAGGGCG CTGGCAAGTG
TTTCCTTCCC TTCTTTCGCT TTCTTCGCCC GCGATCCCGC GACCGTTCAC

401 TAGCGGTCAC GCTGCGCGTA ACCACCACAC CCGCCGCGCT TAATGCGCCG
ATCGCCAGTG CGACGCGCAT TGGTGGTGTG GCGGCGCGCA ATTACGCGGC

NheI
~~~~~

451 CTACAGGGCG CGTGCTAGCG GAGTGATAC TGGCTTACTA TGTGGCACT
GATGTCCCCG GCACGATCGC CTCACATATG ACCGAATGAT ACAACCGTGA

XmnI
~~~~~
AgeI

501 GATGAGGGTG TCAGTGAAGT GCTTCATGTG GCAGGAGAAA AAAGGCTGCA
CTACTCCAC AGTCACTTCA CGAAGTACAC CGTCCTCTTT TTCCGACGT

AgeI
~~~~~

551 CCGGTGCGTC AGCAGAATAT GTGATACAGG ATATATTCCG CTTCCTCGCT
GGCCACGCAG TCGTCTTATA CACTATGTCC TATATAAGGC GAAGGAGCGA

601 CACTGACTCG CTACGCTCGG TCGTTCGACT GCGGCGAGCG GAAATGGCTT
```

**FIG. 35GG**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|     |             |            |            |            |            |
|-----|-------------|------------|------------|------------|------------|
|     | GTGACTGAGC  | GATGCGAGCC | AGCAAGCTGA | CGCCGCTCGC | CTTTACCGAA |
| 651 | ACGAACGGGG  | CGGAGATTTC | CTGGAAGATG | CCAGGAAGAT | ACTTAACAGG |
|     | TGCTTGCCCC  | GCCTCTAAAG | GACCTTCTAC | GGTCCTTCTA | TGAATTGTCC |
| 701 | GAAGTGAGAG  | GGCCGCGGCA | AAGCCGTTTT | TCCATAGGCT | CCGCCCCCCT |
|     | CTTCACTCTC  | CCGGCGCCGT | TTCGGCAAAA | AGGTATCCGA | GGCGGGGGA  |
| 751 | GACAAGCATC  | ACGAAATCTG | ACGCTCAAAT | CAGTGGTGGC | GAAACCCGAC |
|     | CTGTTCTAG   | TGCTTTAGAC | TGCGAGTTTA | GTCACCCACG | CTTTGGGCTG |
| 801 | AGGACTATAA  | AGATACCAGG | CGTTTCCCCC | TGGCGGCTCC | CTCCTGCGCT |
|     | TCCCTGATATT | TCTATGGTCC | GCAAAGGGGG | ACCGCCGAGG | GAGGACGCCA |
|     |             |            | AgeI       |            |            |
|     |             |            | ~~~~~      |            |            |
| 851 | CTCCTGTTCC  | TGCCTTTCGG | TTTACCGGTG | TCATTCCGCT | GTTATGGCCG |
|     | GAGGACAAGG  | ACGGAAAGCC | AAATGGCCAC | AGTAAGGCGA | CAATACCGGC |
| 901 | CGTTTGTCCTC | ATTCCACGCC | TGACACTCAG | TTCCGGGTAG | GCAGTTCGCT |
|     | GCAAACACAG  | TAAGGTGCGG | ACTGTGAGTC | AAGGCCCATC | CGTCAAGCGA |
| 951 | CCAAGCTGGA  | CTGTATGCAC | GAACCCCCCG | TTCAGTCCGA | CCGCTGCGCC |
|     | GGTTCGACCT  | GACATACGTG | CTTGGGGGGC | AAGTCAGGCT | GGCGACGCGG |

**FIG. 35HHH**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|       |             |             |             |             |             |
|-------|-------------|-------------|-------------|-------------|-------------|
| 1001  | TTATCCGGTA  | ACTATCGTCT  | TGAGTCCAAC  | CCGGAAGAC   | ATGCAAAAGC  |
|       | AATAGGCCAT  | TGATAGCAGA  | ACTCAGGTG   | GGCCTTTCTG  | TACGTTTTTCG |
| 1051  | ACCACTGGCA  | GCAGCCACTG  | GTAATTGATT  | TAGAGGAGTT  | AGTCTTGAAG  |
|       | TGGTGACCGT  | CGTCGGTGAC  | CATTAACTAA  | ATCTCCTCAA  | TCAGAACTTC  |
| 1101  | TCATGCCGCCG | GTTAAGGCTA  | AACTGAAAGG  | ACAAGTTTTA  | GTGACTGCCG  |
|       | AGTACGCGGC  | CAATTCCGAT  | TTGACTTTCC  | TGTTCAAAAT  | CACTGACGCG  |
| 1151  | TCCTCCAAGC  | CAGTTACCTC  | GGTCAAAGA   | GTTGGTAGCT  | CAGAGAACCT  |
|       | AGGAGGTTTCG | GTCAATGGAG  | CCAAGTTTCT  | CAACCATCGA  | GTCTCTTGGA  |
| 1201  | ACGAAAAACC  | GCCCTGCAAG  | GCGGTTTTTT  | CGTTTTTCAGA | GCAAGAGATT  |
|       | TGCTTTTTTG  | CGGACGTTC   | CGCCAAAAAA  | GCAAAAGTCT  | CGTTCTCTAA  |
| BglII |             |             |             |             |             |
| ~~~~~ |             |             |             |             |             |
| 1251  | ACGCGCAGAC  | CAAAACGATC  | TCAAGAAGAT  | CATCTTATTA  | GATCTAGCAC  |
|       | TGCGCGTCTG  | GTTTGTCTAG  | AGTTCTTCTA  | GTAGAATAAT  | CTAGATCGTG  |
| 1301  | CAGGCGTTTA  | AGGGCACCAA  | TAACTGCCCTT | AAAAAATAA   | CGCCCCGCCC  |
|       | GTCCGCAAAAT | TCCCCGTGGTT | ATTGACGGAA  | TTTTTTTAAAT | CGGGGGCGGG  |

**FIG. 35III**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |             |              |            |             |            |
|------|-------------|--------------|------------|-------------|------------|
| 1351 | TGCCACTCAT  | CGCAGTACTG   | TTGTAATTCA | TTAAGCATTC  | TGCCGACATG |
|      | ACGGTGAGTA  | CGGTCATGAC   | AACATTAAGT | AATTCGTAAG  | ACGGCTGTAC |
| 1401 | GAAGCCATCA  | CAAACGGCAT   | GATGAACCTG | AATCGCCAGC  | GGCATCAGCA |
|      | CTTCGGTAGT  | GTTTGCCGTA   | CTACTTGGAC | TTAGCGGTG   | CCGTAGTCGT |
| 1451 | CCTTGTCGCC  | TTGCGTATAA   | TATTTGCCCA | TAGTGA AAC  | GGGGCGGAG  |
|      | GGAACAGCGG  | AACGCATATT   | ATAAACGGGT | ATCACTTTTG  | CCCCCGCTTC |
| 1501 | AAGTTGTCCA  | TATTGGCTAC   | GTTTAAATCA | AAACTGGTGA  | AACTCACCCA |
|      | TTCAACACAGT | ATAACCGATG   | CAAATTTAGT | TTTGACCACT  | TTGAGTGGGT |
| 1551 | GGGATTGGCT  | GAGACGAAA    | ACATATTCTC | AATAAACCCCT | TTAGGGAAT  |
|      | CCCTAACCGA  | CTCTGCTTTT   | TGTATAAGAG | TTATTTGGGA  | AATCCCTTTA |
| 1601 | AGGCCAGGTT  | TTCAACCGTAA  | CACGCCACAT | CTTGCGAATA  | TATGTGTAGA |
|      | TCCGGTCCAA  | AAGTGGCATT   | GTGCGGTGTA | GAACGCTTAT  | ATACACATCT |
| 1651 | AACTGCCCGA  | AATCGTCGTG   | GTATTCACTC | CAGAGCGATG  | AAAACGTTTC |
|      | TTGACGGCCT  | TTAGCAGCAC   | CATAAGTGAG | GTCTCGCTAC  | TTTTCGCAAG |
| 1701 | AGTTTGCTCA  | TGGA AAAACGG | TGTAACAAGG | GTGAACACTA  | TCCCATATCA |
|      | TCAAACGAGT  | ACCTTTTGCC   | ACATTGTTCC | CAC TTGTGAT | AGGGTATAGT |

**FIG. 35JJJ**



|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

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1751 CCAGCTCACC GTCTTTCATT GCCATACGGA ACTCCGGGGTG AGCATTCATC
 GGTGAGTGG CAGAAAGTAA CCGTATGCCT TGAGGCCCCAC TCGTAAGTAG

1801 AGCGGGGCAA GAATGTGAAT AAAGGCCCGA TAAAACTTGT GCTTATTTT
 TCCGCCCGTT CTTACACTTA TTTCCGGCCT ATTTTGAACA CGAATAAAAA

1851 CTTTACGGTC TTTAAAAGG CCGTAATATC CAGCTGAACG GTCGGTTAT
 GAAATGCCAG AAATTTTCC GGCATTATAG GTCGACTTGC CAGACCAATA

1901 AGGTACATTG AGCAACTGAC TGAAATGCCT CAAAATGTTT TTTACGATGC
 TCCATGTAAC TCGTTGACTG ACTTTACGGA GTTTTACAAG AAATGCTACG

1951 CATTGGGATA TATCAACGGT GGTATATCCA GTGATTTTTT TCTCCATTTT
 GTAACCCCTAT ATAGTTGCCA CCATATAGGT CACTAAAAAA AGAGGTAAAA

2001 AGCTTCCTTA GCTCCTGAAA ATCTCGATAA CTCAAAAAAT ACGCCCCGTA
 TCGAAGGAAT CGAGGACTTT TAGAGCTATT GAGTTTTTTA TCGGGGCCAT

 AatII
      ~~~~~

2051 GTGATCTTAT TTCATTATGG TGAAAGTTGG AACCTCACCC GACGTCTAAT
      CACTAGAATA AAGTAATACC ACTTTCACCC TTGGAGTGGG CTGCAGATTA

2101 GTGAGTTAGC TCACTCATTA GGCACCCCCAG GCTTTACACT TTATGCTTCC

```

**FIG. 35KKK**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| BRAFTSHAR |           |          |

|      |             |            |             |            |            |  |
|------|-------------|------------|-------------|------------|------------|--|
|      | CACTCAATCG  | AGTGAGTAAT | CCGTGGGGTC  | CGAAATGTGA | AATACGAAGG |  |
| 2151 | GGCTCGTATG  | TTGTGTGGAA | TTGTGAGCGG  | ATAACAATTT | CACACAGGAA |  |
|      | CCGAGCATAC  | AACACACCTT | AACACTCGCC  | TATTGTTAAA | GTGTGTCCTT |  |
|      |             |            | XbaI        |            | SphI       |  |
|      |             |            | ~~~~~       |            | ~~~~~      |  |
| 2201 | ACAGCTATGA  | CCATGATTAC | GAATTTCTAG  | ACCCCCCCCC | CGCATGCCAT |  |
|      | TGTCGATACT  | GGTACTAATG | CTTAAAGATC  | TGGGGGGGGG | CGGTACGGTA |  |
|      |             |            |             | HindIII    |            |  |
|      |             |            |             | ~~~~~      |            |  |
| 2251 | AAC TTCGTAT | AATGTACGCT | ATACGAAGTT  | ATAAGCTTGA | CCTGTGAAGT |  |
|      | TTGAAGCATA  | TTACATGCCA | TATGCTTCAA  | TATTCGAACT | GGACACTTCA |  |
|      |             |            |             |            | PacI       |  |
|      |             |            |             |            | ~~~~~      |  |
| 2301 | GAAAAATGGC  | GCAGATTGTG | CGACATTTT   | TTTGTCTGCC | GTTTAATTAA |  |
|      | CTTTTACCG   | CGCTAACAC  | GCTGTAAAAA  | AAACAGACGG | CAAATTAATT |  |
|      |             |            |             | FseI       |            |  |
|      |             |            |             | ~~~~~      |            |  |
| 2351 | GGGGGGGGGC  | CGGCCATTAT | CAAAAAGGAT  | CTCAAGAAGA | TCCTTTGATC |  |
|      | CCCCCCCCCG  | GCCGGTAATA | GTTTTTCCCTA | GAGTCTTCT  | AGGAAACTAG |  |

**FIG. 35LLL**

|           |           |
|-----------|-----------|
| APPROVED  | O.G. FIG. |
| BY        | CLASS     |
| DRAFTSMAN | SUBCLASS  |

|      |             |            |             |             |             |
|------|-------------|------------|-------------|-------------|-------------|
| 2401 | TTTTCTACGG  | GGTCTGACGC | TCAGTGGAAC  | GAAAACTCAC  | GTTAAGGGAT  |
|      | AAAAGATGCC  | CCAGACTGCG | AGTCACCTTG  | CTTTTGAGTG  | CAATTCCCTA  |
| 2451 | TTTGGTTCATG | AGATTATCAA | AAAGGATCTT  | CACCTAGATC  | CTTTTAAATT  |
|      | AAACCAGTAC  | TCTAATAGTT | TTTCCTAGAA  | GTGGATCTAG  | GAAAATTTAA  |
| 2501 | AAAAATGAAG  | TTTTAAATCA | ATCTAAAGTA  | TATATGAGTA  | AACTTGGTCT  |
|      | TTTTTACTTC  | AAAATTTAGT | TAGATTTTCAT | ATATACTCAT  | TTGAACCCAGA |
| 2551 | GACAGTTACC  | CAATGCTTAA | TCAGTGAGGC  | ACCTATCTCA  | GCGATCTGTC  |
|      | CTGTCAATGG  | GTTACGAATT | AGTCACTCCG  | TGGATAGAGT  | CGCTAGACAG  |
| 2601 | TATTTTCGTTT | ATCCATAGTT | GCCTGACTCC  | CCGTCGTGTA  | GATAACTACG  |
|      | ATAAAGCAAG  | TAGGTATCAA | CGGACTGAGG  | GGCAGCACAT  | CTATTGATGC  |
| 2651 | ATACGGGAGG  | GCTTACCATC | TGGCCCCCAGT | GCTGCAATGA  | TACCGCGAGA  |
|      | TATGCCCTCC  | CGAATGGTAG | ACCGGGGTCA  | CGACGTTACT  | ATGGCGCTCT  |
| 2701 | CCCACGCTCA  | CCGGCTCCAG | ATTATCAGC   | AATAAACCAG  | CCAGCCGGAA  |
|      | GGTGCGGAGT  | GGCCGAGGTC | TAAATAGTCG  | TTATTGGTC   | GGTCGGCCTT  |
| 2751 | GGGCCGAGCG  | CAGAAGTGGT | CCTGCAACTT  | TATCCGCCCTC | CATCCAGTCT  |
|      | CCCGGCTCGC  | GTCTTCACCA | GGACGTTGAA  | ATAGCGGAG   | GTAGGTCAGA  |

**FIG. 35MMM**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

2801 ATTAACCTGTT GCCGGGAAGC TAGAGTAAGT AGTTCGCCAG TTAATAGTTT  
TAATTGACAA CGGCCCTTCG ATCTCATCA TCAAGCGGTC AATTATCAAA

2851 GCGCAACGTT GTTGCCATTG CTACAGGCAT CGTGGTGTCA CGCTCGTCGT  
CGCGTTGCAA CAACGGTAAC GATGTCCGTA GCACCACAGT GCGAGCAGCA

2901 TTGGTATGGC TTCATTACAG TCCGGTTCCC AACGATCAAG GCGAGTTACA  
AACCATACCG AAGTAAGTCG AGGCCAAGGG TTGCTAGTTC CGCTCAATGT

2951 TGATCCCCCA TGTGTGCAA AAAAGCGGTT AGCTCCTTCG GTCCCTCCGAT  
ACTAGGGGGT ACAACACGTT TTTTCGCCAA TCGAGGAAGC CAGGAGGCTA

3001 CGTTGTCAGA AGTAAGTTGG CCGCAGTGTT ATCACTCATG GTTATGGCAG  
GCAACAGTCT TCATTCAACC GCGGTCACAA TAGTGAGTAC CAATACCGTC

3051 CACTGCATAA TTCTCTTACT GTCATGCCAT CCGTAAGATG CTTTCTGTG  
GTGACGTATT AAGAGAATGA CAGTACGGTA GGCATTCTAC GAAAGACAC

3101 ACTGGTGAGT ACTCAACCAA GTCATTCTGA GAATAGTGTG TCGGCGGACC  
TGACCACTCA TGAGTTGGTT CAGTAAGACT CTTATCACAT ACGCCGCTGG

3151 GAGTTGCTCT TGCCCCGGCGT CAATACGGGA TAATACCGCG CCACATAGCA  
CTCAACGAGA ACGGGCCGCA GTTATGCCCT ATTATGGCGC GGTGTATCGT

FIG. 35NNN

|           |          |          |
|-----------|----------|----------|
| APPROVED  | 0.6.FIG. |          |
| BY        | CLASS    | SUBCLASS |
| CRAFTSMAN |          |          |

# XmnI

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3201  GAACTTTAAA AGTGCTCATC ATTGGAAAAC GTTCTTCGGG GCGAAAACCTC
      CTTGAAATTT TCACGAGTAG TAACCTTTTG CAAGAAGCCC CGCTTTTGAG

3251  TCAAGGATCT TACCGCTGTT GAGATCCAGT TCGATGTAAC CCACTCGCGC
      AGTTCCCTAGA ATGGCGACAA CTCTAGGTCA AGCTACATTG GGTGAGCGCG

3301  ACCCAACTGA TCCTCAGCAT CTTTACTTT CACCAGCGTT TCTGGGTGAG
      TGGGTTGACT AGGAGTCGTA GAAATGAAA GTGGTCGCAA AGACCCACTC

3351  CAAAAACAGG AAGGCAAAAT GCCGCAAAA AGGGAATAAG GCGACACGG
      GTTTTGTCC TTCCGTTTTA CGCGTTTTT TCCCTTATTC CCGCTGTGCC

3401  AAATGTTGAA TACTCATACT CTTCCTTTT CAATATTATT GAAGCATTTA
      TTTACAACCTT ATGAGTATGA GAAGGAAAAA GTTATAATAA CTTCGTAAAT
  
```

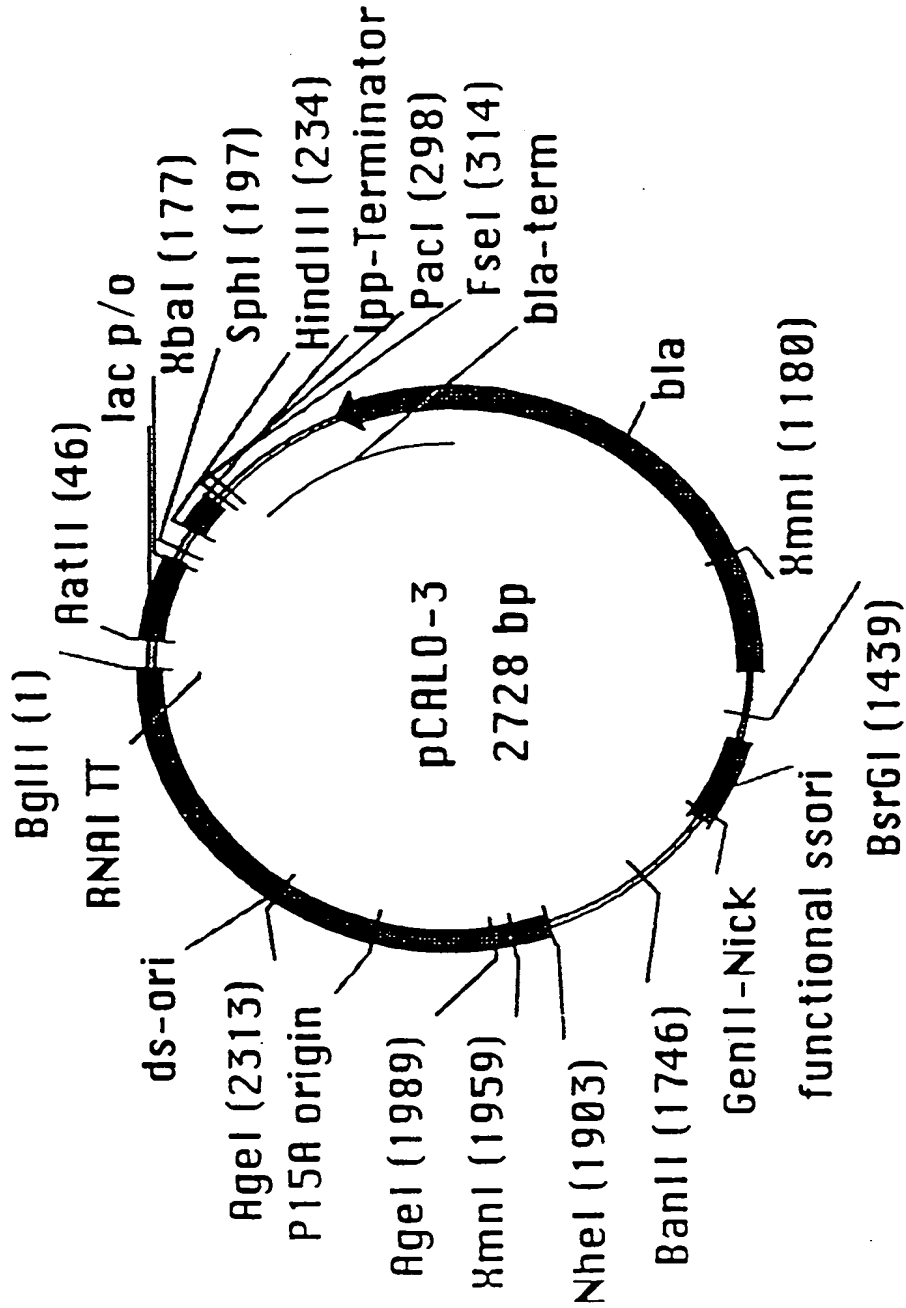
## BsrGI

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3451  TCAGGGTTAT TGTCTCATGA GCGGATACAT ATTTGAAT
      AGTCCCAATA ACAGAGTACT CGCCTATGTA TAAACTTA
  
```

**FIG. 35000**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |



**FIG. 35PPP**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

pCALO-3:

|       |             |            |            |            |            |
|-------|-------------|------------|------------|------------|------------|
| BglII |             |            |            |            | AatII      |
| ~~~~~ |             |            |            |            | ~~~~~      |
| 1     | GATCTCATAA  | CTTCGTATAA | TGTATGCTAT | ACGAAGTTAT | GACGTCTAAT |
|       | CTAGAGTATT  | GAAGCATATT | ACATACGATA | TGCTTCAATA | CTGCAGATTA |
| 51    | GTGAGTTAGC  | TCACTCATT  | GGCACCCAG  | GCTTACACT  | TTATGCTTCC |
|       | CACTCAATCG  | AGTGAGTAAT | CCGTGGGGTC | CGAAATGTGA | AATACGAAGG |
| 101   | GGCTCGTATG  | TTGTGTGGAA | TTGTGAGCGG | ATAACAATT  | CACACAGGAA |
|       | CCGAGCATAC  | AACACACCTT | AACACTCGCC | TATTGTTAAA | GTGTGTCCTT |
| 151   | ACAGCTATGA  | CCATGATTAC | GAATTTCTAG | ACCCCCCCC  | CGCATGCCAT |
|       | TGTCGATACT  | GGTACTAATG | CTTAAAGATC | TGGGGGGGG  | CGGTACGGTA |
| 201   | AACCTTCGTAT | AATGTACGCT | ATACGAAGTT | ATAAGCTTGA | CCTGTGAAGT |
|       | TTGAAGCATA  | TTACATGCGA | TATGCTTCAA | TATTCGAACT | GGACACTTCA |

HindIII  
 ~~~~~

XbaI
 ~~~~~

SphI  
 ~~~~~

PacI

FIG. 35QQQ

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

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251  GAAAAATGGC GCAGATTGTG CGACATTTT TTTGTCTGCC GTTAAATTAA
      CTTTTTACCG CGTCTAACAC GCTGTAAAAA AAACAGACGG CAAATTAAAT
      ~~~~~

301  GGGGGGGGGC CGGCCATTAT CAAAAGGAT CTCAAGAAGA TCCTTTGATC
      CCCCCCCCCG GCCGGTAATA GTTTTCCCTA GAGTCTTCT AGGAAACTAG
      ~~~~~

351  TTTTCTACGG GGCTGACGC TCAGTGGAAC GAAAACTCAC GTTAAGGGAT
      AAAGATGCC CCAGACTGCG AGTCACCTTG CTTTGTAGTG CAATTCCCCTA
      ~~~~~

401  TTTGGTCATG AGATTATCAA AAAGGATCTT CACCTAGATC CTTTAAATTT
      AAACCAGTAC TCTAATAGTT TTTCCCTAGAA GTGGATCTAG GAAATTTTAA
      ~~~~~

451  AAAAAATGAAG TTTTAAATCA ATCTAAAGTA TATATGAGTA AACTTGGTCT
      TTTTACTTTC AAAATTTAGT TAGATTTCAT ATATACTCAT TTGAACCAGA
      ~~~~~

501  GACAGTTACC CAATGCTTAA TCAGTGAGGC ACCTATCTCA GCGATCTGTC
      CTGTCAATGG GTTACGAATT AGTCACCTCCG TGGATAGAGT CGCTAGACAG
      ~~~~~

551  TATTTCGTTT ATCCATAGTT GCCTGACTCC CCGTCGTGTA GATAACTACG
      ATAAAGCAAG TAGGTATCAA CGGACTGAGG GGCAGCACAT CTATTGATGC
  
```

FseI

FIG. 35RRR

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

| | | | | | |
|-----|-------------|-------------|-------------|-------------|-------------|
| 601 | ATACGGGAGG | GCTTACCATC | TGGCCCCAGT | GCTGCAATGA | TACCGCGAGA |
| | TATGCCCTCC | CGAATGGTAG | ACCGGGGTCA | CGACGTTACT | ATGGCGCTCT |
| 651 | CCCACGCTCA | CCGGCTCCAG | ATTTATCAGC | AATAAACCCAG | CCAGCCGGAA |
| | GGTGCGAGT | GGCCGAGGTC | TAAATAGTCG | TTATTTGGTC | GGTCGGCCTT |
| 701 | GGCCCGAGCG | CAGAAGTGGT | CCTGCAACTT | TATCCGCCCTC | CATCCAGTCT |
| | CCC GGCTCGC | GTC TTCACCA | GGACGTTGAA | ATAGCGGAG | GTAGGTCAGA |
| 751 | ATTAACCTGT | GCCGGGAAGC | TAGAGTAAGT | AGTTCGCCCAG | TTAATAGTTT |
| | TAAATTGACAA | CGGCCCTTCG | ATCTCATTCA | TCAAGCGGTC | AATTATCAAA |
| 801 | GCGCAACGTT | GTTGCCATTG | CTACAGGCAT | CGTGGTGTC | CGCTCGTCGT |
| | CGCGTTGCAA | CAACGGTAAC | GATGTCCGTA | GCACCACAGT | GCGAGCAGCA |
| 851 | TTGGTATGGC | TTCATTTCAGC | TCCGGTTCCC | AACGATCAAG | GCGAGTTACA |
| | AACCATACCG | AAGTAAGTCG | AGGCCAAGGG | TTGCTAGTTC | CGCTCAATGT |
| 901 | TGATCCCCCA | TGTTGTGCAA | AAAAGCGGTT | AGCTCCTTCG | GTCCCTCCGAT |
| | ACTAGGGGGT | ACAACACGTT | TTTTTCGCCAA | TCGAGGAAGC | CAGGAGGCTA |
| 951 | CGTTGTCAGA | AGTAAGTTGG | CCGCAGTGTT | ATCACTCATG | GTTATGGCAG |
| | GCAACAGTCT | TCATTCAACC | GGCGTCACAA | TAGTGAGTAC | CAATACCGTC |

FIG. 35SSS

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

```

1001  CACTGCATAA  TTCTCTTACT  GTCATGCCAT  CCGTAAGATG  CTTTCTGTG
      GTGACGTATT  AAGAGAATGA  CAGTACGGTA  GGCATTCTAC  GAAAGACAC

1051  ACTGGTGAGT  ACTCAACCAA  GTCATTCTGA  GAATAGTGTA  TGCGGCGACC
      TGACCACTCA  TGAGTTGGTT  CAGTAAGACT  CTTATCACAT  ACGCCGCTGG

1101  GAGTTGCTCT  TGCCCGGCGT  CAATACGGGA  TAATACCGCG  CCACATAGCA
      CTCAACGAGA  ACGGCGCGCA  GTTATGCCCT  ATTATGGCGC  GGTGTATCGT

      XmnI
      ~~~~~

1151  GAACTTTAAA  AGTGCTCATC  ATTGGAAAC  GTTCTTCGGG  GCGAAATC
      CTTGAAATTT  TCACGAGTAG  TAACCTTTTG  CAAGAAGCCC  CGCTTTTGAG

1201  TCAAGGATCT  TACCGCTGTT  GAGATCCAGT  TCGATGTAAC  CCACTCGCGC
      AGTTCCTAGA  ATGGCGACAA  CTCAGGTCA  AGCTACATTG  GGTGAGCGCG

1251  ACCCAACTGA  TCCTCAGCAT  CTTTACTTT  CACCAGCGTT  TCTGGGTGAG
      TGGGTTGACT  AGGAGTCGTA  GAAATGAAA  GTGGTCGCAA  AGACCCACTC

1301  CAAAACACAG  AAGGCAAAAT  GCCGCAAAA  AGGGAATAAG  GCGACACGG
      GTTTTGTCC  TTCCGTTTAA  CGCGTTTTC  TCCCTTATTC  CCGCTGTGCC

1351  AAATGTTGAA  TACTCATACT  CTTCCCTTTT  CAATATTATT  GAAGCATTTA
  
```

FIG. 35TTT

| | | | |
|-----------|----------|----------|--|
| APPROVED | O.G.FIG. | | |
| BY | CLASS | SUBCLASS | |
| GRAFTSMAN | | | |

TTTACAACCTT ATGAGTATGA GAAGGAAAAA GTTATAATAA CTTCGTAAAT

BsrGI

~~~~~

1401 TCAGGGTTAT TGTCTCATGA GCGGATACAT ATTTGAATGT ACATGAAATT  
 AGTCCCAATA ACAGAGTACT CGCCTATGTA TAAACTTACA TGTACTIONTAA

1451 GTAAACGTTA ATATTTTGTGTT AAAATTGCGG TTAAATTTTTT GTTAAATCAG  
 CATTTGCAAT TATAAAACAA TTTTAAGCGC AATTAAAAA CAATTAGTC

1501 CTCATTTTTT AACCAATAGG CCGAAATCGG CAAAATCCCT TATAAATCAA  
 GAGTAAAAAA TTGGTTATCC GGCTTTAGCC GTTTAGGGA ATATTAGTT

1551 AAGAATAGAC CGAGATAGGG TTGAGTGTTG TTCCAGTTTG GAACAAGAGT  
 TTCCTTATCTG GCTCTATCCC AACTCACAAAC AAGTCAAAAC CTTGTTCTCA

1601 CCACTATTAA AGAACGTGGA CTCCAACGTC AAAGGGCGAA AAACCGTCTA  
 GGTGATAAAT TCTTGACACCT GAGGTTGCAG TTTCCCGCTT TTTGGCAGAT

1651 TCAGGGCGAT GGCCCACTAC GAGAACCATC ACCCTAATCA AGTTTTTTGG  
 AGTCCCGCTA CCGGGTGATG CTCTTTGGTAG TGGGATTAGT TCAAAAAAACCC

BanII

~~~~~

FIG. 35UUU

| | | |
|-----------|----------|----------|
| APPROVED | O.G.FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

| | |
|---------------|---|
| 1701 | GGTCGAGGTG CCGTAAAGCA CTAAATCGGA ACCCTAAAGG GAGCCCCCGA
CCAGCTCCAC GGCATTTCGT GATTAGCCT TGGGATTTC CTCGGGGGCT |
| 1751 | TTTAGAGCTT GACGGGGAAA GCCGGCGAAC GTGGCCGAGAA AGGAAGGGAA
AAATCTCGAA CTGCCCCCTT CGCCCGCTTG CACCGCTCTT TCCTTCCCTT |
| 1801 | GAAAGCGAAA GGAGCGGGCG CTAGGGCGCT GGCAAGTGTA GCGGTACGC
CTTTCGCTTT CCTCGCCCGC GATCCCGCGA CCGTTCACAT CGCCAGTGCG |
| 1851 | TGCGCGTAAC CACCACACCC GCCGCGCTTA ATGCGCCGCT ACAGGGCGCG
ACGCGCATTG GTGGTGTTGG CGCGCGGAAT TACGCGGCGA TGTCCCGCGC |
| NheI
~~~~~ | |
| 1901 | TGCTAGCGGA GTGTATACTG GCTTACTATG TTGGCACTGA TGAGGGTGTC
ACGATCGCCT CACATATGAC CGAATGATAC AACCCTGACT ACTCCCCACAG |
| XmnI
~~~~~ | |
| 1951 | AGTGAAGTGC TTCATGTGGC AGGAGAAAAA AGGCTGCACC GGTGCGTCAG
TCACTTCACG AAGTACACCG TCCTCTTTT TCCGACGTGG CCACGCAGTC |
| 2001 | CAGAATATGT GATACAGGAT ATATTCCGCT TCCTCGCTCA CTGACTCGCT
GTCCTTATACA CTATGTCCTA TATAAGGCGA AGGAGCGAGT GACTGAGCGA |

AgeI
~~~~~

**FIG. 35VV**

|           |                  |
|-----------|------------------|
| APPROVED  | O.G. FIG.        |
| BY        | CLASS   SUBCLASS |
| GRAFTSMAN |                  |

|               |             |            |            |            |             |
|---------------|-------------|------------|------------|------------|-------------|
| 2051          | ACGCTCGGTC  | GTCGACTGC  | GGCAGCGGA  | AATGGCTTAC | GAACGGGGCG  |
|               | TCCGAGCCAG  | CAAGCTGACG | CCGCTCGCCT | TTACCGAATG | CTTGCCCCCG  |
| 2101          | GAGATTTCCT  | GGAAGATGCC | AGGAAGATAC | TTAACAGGGA | AGTGAGAGGG  |
|               | CTCTAAAGGA  | CCTTCTACGG | TCCTTCTATG | AATTGTCCCT | TCACTCTCCC  |
| 2151          | CCGCGGCAAA  | GCCGTTTTC  | CATAGGCTCC | GCCCCCCTGA | CAAGCATCAC  |
|               | GGCGCCGTTT  | CGCAAAAAG  | GTATCCGAGG | CGGGGGGACT | GTTCGTAAGT  |
| 2201          | GAAATCTGAC  | GCTCAAATCA | GTGGTGCGGA | AACCCGACAG | GACTATAAAG  |
|               | CTTTAGACTG  | CGAGTTTAGT | CACCACCGCT | TTGGGCTGTC | CTGATATTTC  |
| 2251          | ATACCAAGCG  | TTTCCCCCTG | GCGGCTCCCT | CCTGCGCTCT | CCTGTTCCCTG |
|               | TATGGTCCCG  | AAAGGGGGAC | CGCCGAGGGA | GGACGCGAGA | GGACAAGGAC  |
| AgeI<br>~~~~~ |             |            |            |            |             |
| 2301          | CCTTTCGGTT  | TACCGGTGTC | ATTCCGCTGT | TATGGCCCGG | TTTGTCTCAT  |
|               | GGAAAGCCAA  | ATGGCCACAG | TAAGGCGACA | ATACCGGCGC | AAACAGAGTA  |
| 2351          | TCCACGCCCTG | ACACTCAGTT | CCGGGTAGGC | AGTTCGCTCC | AAGCTGGACT  |
|               | AGGTGCGGAC  | TGTAGTCAA  | GGCCCATCCG | TCAAGCGAGG | TTGACCTGA   |

**FIG. 35WW**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

|      |            |            |             |            |             |
|------|------------|------------|-------------|------------|-------------|
| 2401 | GTATGCACGA | ACCCCCCGTT | CAGTCCGACC  | GCTGGCCCTT | ATCCGGTAAC  |
|      | CATACGTGCT | TGGGGGGCAA | GTCAGGCTGG  | CGACCGGAA  | TAGGCCATTG  |
| 2451 | TATCGTCTTG | AGTCCAACCC | GGAAGACAT   | GCAAAAGCAC | CACTGGCAGC  |
|      | ATAGCAGAAC | TCAGGTTGGG | CCTTCTCTGA  | CGTTTTCGTG | GTGACCGTCG  |
| 2501 | AGCCACTGGT | AATTGATTTA | GAGGAGTTAG  | TCTTGAAGTC | ATCGGCCCGGT |
|      | TCGGTGACCA | TTAACTAAAT | CTCCTCAATC  | AGAACTTCAG | TACGCGGCCA  |
| 2551 | TAAGGCTAAA | CTGAAAGGAC | AAGTTTTAGT  | GACTGCGCTC | CTCCAAGCCA  |
|      | ATTCCGATT  | GACTTTCCTG | TTCAAAATCA  | CTGACGCGAG | GAGGTTCCGT  |
| 2601 | GTTACCTCGG | TTCAAAGAGT | TGGTAGCTCA  | GAGAACCTAC | GAAAAACCGC  |
|      | CAATGGAGCC | AAGTTTCTCA | ACCATCGAGT  | CTCTTGATG  | CTTTTGGCG   |
| 2651 | CCTGCAAGGC | GGTTTTTTCG | TTTTTCAGAGC | AAGAGATTAC | GCGCAGACCA  |
|      | GGACGTTCCG | CCAAAAAAGC | AAAAGTCTCG  | TTCTCTAATG | CGCGTCTGGT  |

BglII

|      |            |            |           |
|------|------------|------------|-----------|
| 2701 | AAACGATCTC | AAGAAGATCA | TCTTATTA  |
|      | TTTGCTAGAG | TTCTTCTAGT | AGAAATAAT |

**FIG. 35XXX**

M1: PCR using template

NoVspAatII: TAGACGTC

M2: synthesis

BloxA-A: TATGAGATCTCATAACTTCGTATAATGTACGCTATACG-  
AAGTTAT

BloxA-B: TAATAACTTCGTATAGCATAATTATACGAAGTTATG-  
AGATCTCA

M3: PCR, NoVspAatII as second oligo

XloxS-muta: CATTTTTGCCCTCGTTATCTACGCATGCGATAACTTCGTA-  
TAGCGTACATTATACGAAGTTATTCTAGACATGGTCATAGCTGTTTCCTG

M7-I: PCR

gIIINEW-fow: GGGGGGAATTCGGTGGTGGTGGATCTGCGTGCGCTG-  
AAACGGTTGAAAGTTG

gIIINEW-rev: CCCCCCAAGCTTATCAAGACTCCTTATTACG

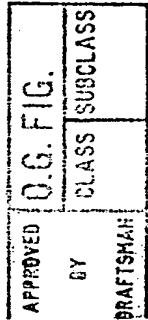
M7-II: PCR

gIIIss-fow: GGGGGGGGAATTCGGAGGCGGTCCGGTGGTGGC

M7-III: PCR

gIIIsupernew-fow: GGGGGGGGAATTCGAGCAGAAGCTGATCTCT-  
GAGGAGGATCTGTAGGGTGGTGGCTCTGGTTCCGGTGATTTTG

**FIG. 35YYY**



M8: synthesis

lox514-A: CCATAACTTCGTATAATGTACGCTATACGAAGTTATA

lox514-B: AGCTTATAACTTCGTATAGCGTACATTATACGAAGT-  
TATGGCATG

M9II: synthesis

M9II-fow: AGCTTGACCTGTGAAGTGAAAAATGGCGCAGATT-  
GTGCGACATTTTTTTGTCTGCCGTTTAATTAAAGGGGGGGT

M9II-rev: GTACACCCCCCCCCAGGCCGGCCCCCCCCCCCCCTTTAA-  
TTAAACGGCAGACAAAAAAAATGTCGCACAATCTGCG

M10II: assembly PCR with template

bla-fow: GGGGGGGTGTACATTCAAATATGTATCCGCTCATG

bla-seq4: GGGTTACATCGAACTGGATCTC

bla1-muta: CCAGTTCGATGTAACCCACTCGCGCACCCAACTGATC-  
CTCAGCATCTTTACTTTCACC

blall-muta: ACTCTAGCTTCCCGGCAACAGTTAATAGACTGGATG-  
GAGGCGG

bla-NEW: CTGTTGCCGGGAAGCTAGAGTAAG

bla-rev: CCCCCCTTAATTAAGGGGGGGGGCCGGCCATTATCAAA-  
AAGGATCTCAAGAAGATCC

M11II/III: PCR, site-directed mutagenesis

**FIG. 35ZZZ**

|           |           |                  |
|-----------|-----------|------------------|
| APPROVED  | O.G. FIG. |                  |
|           | BY        | CLASS / SUBCLASS |
| DRAFTSMAN |           |                  |



f1-fow: GGGGGGGGCTAGCACGCGCCCTGTAGCGGCGCATTAA  
f1-rev: CCCCCCTGTACATGAAATTGTAAACGTTAATATTTTG  
f1-t133.muta: GGGCGATGGCCCACTACGAGAACCATCACCCCTAATC

M12: assembly PCR using template

p15-fow: GGGGGGAGATCTAATAAGATGATCTTCTTGAG  
p15-NEWI: GAGTTGGTAGCTCAGAGAACCTACGAAAAACCGCCCTG-  
CAAGGCG  
p15-NEWII: GTAGGTTCTCTGAGCTACCAACTC  
p15-NEWIII: GTTCCCCCTGGCGGCTCCCTCCTGCGCTCTCCTGTTCT-  
GCC  
p15-NEWIV: AGGAGGGAGCCGCCAGGGGGGAAAC  
p15-rev: GACATCAGCGCTAGCGGAGTGTATAC

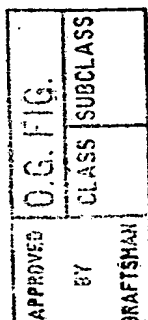
M13: synthesis

BloxXB-A: GATCTCATAACTTCGTATAATGTATGCTATACGAAGTTA-  
TTCA  
BloxXB-B: GATCTGAATAACTTCGTATAGCATACATTATACGAAGTTA-  
TGAGA

M14-Ext2: PCR, site-directed mutagenesis

ColEXT2-fow: GGGGGGGGAGATCTGACCAAAATCCCTTAACGTGAG  
Col-mutal: GGTATCTGCGCTCTGCTGTAGCCAGTTACCTTCGG

**FIG. 35AAAA**



Col-rev: CCCCCCGCTAGCCATGTGAGCAAAAGGCCAGCAA

M17: assembly PCR using template

CAT-1: GGGACGTCGGGTGAGGTTCCAAC

CAT-2: CCATACGGAACTCCGGGTGAGCATTCATC

CAT-3: CCGGAGTTCGGTATGG

CAT-4: ACGTTTAAATCAAACTGG

CAT-5: CCAGTTTTGATTTAAACGTAGCCAATATGGACAACTTCTTC-  
GCCCCCGTTTTCACTATGGGCAAATATT

CAT-6: GGAAGATCTAGCACCAGGCGTTTAAG

M41: assembly PCR using template

LAC1: GAGGCCGGCCATCGAATGGCGCAAAAC

LAC2: CGCGTACCGTCCTCATGGGAGAAAATAATAC

LAC3: CCATGAGGACGGTACGCGACTGGGCGTGGAGCATCTGGTCGCA-  
TTGGGTCACCAGCAAATCCGCTGTTAGCTGGCCCATTAAG

LAC4: GTCAGCGGCGGGATATAACATGAGCTGTCCTCGGTATCGTCG

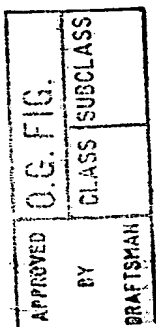
LAC5: GTTATATCCCGCCGCTGACCACCATCAAAC

LAC6: CATCAGTGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCGT4TTG-  
GGAGCCAGGGTGGTTTTTC

LAC7: GGTTAATTAACCTCACTGCCCCGCTTTCAGTCGGGAAACCTGTCGTGCC-  
AGCTGCATCAGTGAATCGGCCAAC

M41-MCS-fow: CTAGACTAGTGTTTAAACCGGACCGGGGGGGGGCTT-  
AAGGGGGGGGGGGGGG

**FIG. 35BBBB**



M41-MCS-rev: CTAGCCCCCCCCCCCCCTTAAGCCCCCCCCCGGTCCGGT-  
TTAAACACTAGT

M41-fow: CTAGACTAGTGTTTAAACCGGACCGGGGGGGGGCTTAA-  
GGGGGGGGGGGG

M41-rev: CCCCCCTTAAGTGGGCTGCAAAACAAAACGGCCTCC-  
TGTCAGGAAGCCGCTTTTATCGGGTAGCCTCACTGCCCCGCTTCC

M41-A2: GTTGTGTGCCACGCGGTTAGGAATGTAATTCAGCTCCGC

M41-B1: AACCGCGTGGCACAACAAC

M41-B2: CTCGTTCTACCATCGACACGACCACGCTGGCACCCAGTTG

M41-C1: GTGTCGATGGTAGAACGAAG

M41-CII: CCACAGCAATAGCATCCTGGTCATCCAGCGGATAGTT-  
AATAATCAGCCCACTGACACGTTGCGCGAG

M41-DI: GACCAGGATGCTATTGCTGTGG

M41-DII: CAGCGCGATTTGCTGGTGGCCCAATGCGACCAGATGC

M41-EI: CACCAGCAAATCGCGCTG

M41-EII: CCCGGACTCGGTAATGGCACGCATTGCGCCCAGCGCC

M41-FI: GCCATTACCGAGTCCGGG

M42: synthesis

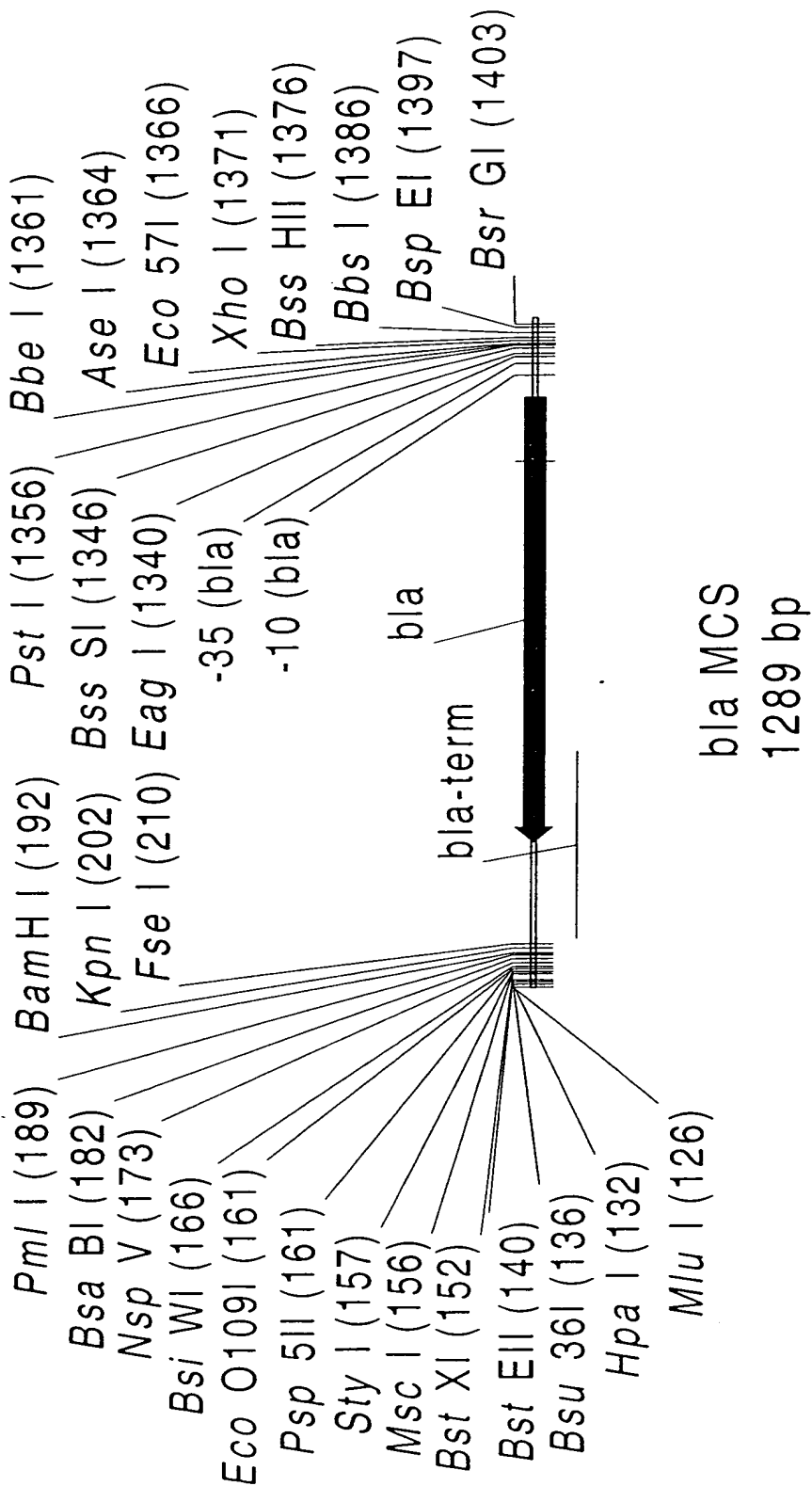
Eco-H5-Hind-fow: AATTCCACCATCATCACCATTGACGTCTA

Eco-H5-Hind-rev: AGCTTAGACGTCAATGGTGATGATGGTGG

***FIG. 35CCCC***

|          |           |          |
|----------|-----------|----------|
| APPROVED | C.G. FIG. |          |
|          | CLASS     | SUBCLASS |
| BY       | DRAFTSMAN |          |

|           |                |
|-----------|----------------|
| APPROVED  | O.G. FIG.      |
| BY        | CLASS SUBCLASS |
| DRAFTSMAN |                |



**FIG. 36A**

|           |           |          |
|-----------|-----------|----------|
| APPROVED  | O.G. FIG. |          |
| BY        | CLASS     | SUBCLASS |
| DRAFTSMAN |           |          |

StyI

~~~~~

Psp5II

~~~~~

EcoO109I

~~~~~

BstXI

~~~~~

MscI

~~~~~

BsiWI NspV

~~~~~

Bsu36I

~~~~~

BstEII

~~~~~

MluI

~~~~~

HpaI

~~~~~

126 CGCGTTAACC TCAGGTGACC AAGCCCCCTGG CCAAGGTCCC GTACGTTCCA  
 GCGCAATTGG AGTCCACTGG TTCGGGGACC GGTTCAGGG CATGCAAGCT

PmlI

~~~~~

FseI

~~~~~

KpnI

~~~~~

BamHI

~~~~~

NspVBsaBI

~~~~~

176 AGATTACCAT CACGTGGATC CCGTACCAGG CCGGCCATTA TCAAAAAGGA
 TCTAATGGTA GTGCACCTAG GCCATGGTCC GCGCGGTAAT AGTTTTCCT

226 TCTCAAGAAG ATCCTTTGAT CTTTCTACG GGTCTGACG CTCAGTGGAA
 AGAGTCTTTC TAGGAAACTA GAAAAGATGC CCCAGACTGC GAGTCACCTT

276 CGAAAACTCA CGTTAAGGA TTTTGGTCAT GAGATTATCA AAAAGGATCT
 GCTTTTGAGT GCAATTCCCT AAAACCAGTA CTCTAATAGT TTTTCCCTAGA

FIG. 36B

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

| | | | | | |
|-----|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| 326 | TCACCTAGAT
AGTGGATCTA | CCTTTTAAAT
GGAAAATTTA | TAAAAATGAA
ATTTTACTT | GTTTAAATC
CAAAATTTAG | AATCTAAAGT
TTAGATTTC |
| 376 | ATATATGAGT
TATATACTCA | AAACTTGGTC
TTTGAACCCAG | TGACAGTTAC
ACTGTCAATG | CAATGCTTAA
GTTACGAATT | TCAGTGAGGC
AGTCACTCCG |
| 426 | ACCTATCTCA
TGGATAGAGT | GGATCTGTC
CGCTAGACAG | TATTTCTGTC
ATAAAGCAAG | ATCCATAGTT
TAGGTATCAA | GCCTGACTCC
CGGACTGAGG |
| 476 | CCGTCGTGTA
GGCAGCACAT | GATAACTACG
CTATTGATGC | ATACGGGAGG
TATGCCCTCC | GCTTACCATC
CGAATGGTAG | TGGCCCCAGT
ACCGGGGTCA |
| 526 | GCTGCAATGA
CGACGTTACT | TACCGCGAGA
ATGGCGCTCT | CCCACGCTCA
GGTGCGGAGT | CCGGCTCCAG
GGCCGAGGTC | ATTTATCAGC
TAAATAGTCG |
| 576 | AATAAACCAG
TTATTTTGGTC | CCAGCCGGAA
GGTCGGCCTT | GGCCCGAGCG
CCC GGCTCGC | CAGAA GTGGT
GTCTTCACCA | CCTGCAACTT
GGACGTTGAA |
| 626 | TATCCGCCCTC
ATAGGCGGAG | CATCCAGTCT
GTAGGTCAGA | ATTA ACTGTT
TAATTGACAA | GCCGGGAAGC
CGGCCCTTCC | TAGAGTAAGT
ATCTCATTTCA |
| 676 | AGTTCGCCCAG
TCAAGCGGTC | TTAATAGTTT
AATTATCAAA | GGCAACGTT
CGCGTTGCCAA | GTTGCCATTG
CAACGGTAAC | CTACAGGCAT
GATGTCCCGTA |

FIG. 36C

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

| | | | | | |
|------|-------------|-------------|------------|------------|------------|
| 726 | CGTGGTGTC | CGCTCGTCGT | TTGGTATGGC | TTCATTCAGC | TCCGGTTCCC |
| | GCACCAACAGT | GCGAGCAGCA | AACCATACCG | AAGTAAGTCG | AGGCCAAGGG |
| 776 | AACGATCAAG | GCGAGTTACA | TGATCCCCCA | TGTTGTGCAA | AAAAGCGGTT |
| | TTGCTAGTTC | CGCTCAATGT | ACTAGGGGGT | ACAACACGTT | TTTTCGCCAA |
| 826 | AGCTCCTTCG | GTCTCCTCGAT | CGTTGTCAGA | AGTAAGTTGG | CCGCAGTGTT |
| | TCGAGGAAGC | CAGGAGGCTA | GCAACAGTCT | TCATTCAACC | GGCGTCACAA |
| 876 | ATCACTCATG | GTTATGGCAG | CACTGCATAA | TTCTCTTACT | GTCATGCCAT |
| | TAGTGAGTAC | CAATACCGTC | GTGACGTATT | AAGAGAATGA | CAGTACGGTA |
| 926 | CCGTAAGATG | CTTTTCTGTG | ACTGGTGAGT | ACTCAACCAA | GTCATTCTGA |
| | GGCATTCTAC | GAAAGACAC | TGACCACTCA | TGAGTTGGTT | CAGTAAGACT |
| 976 | GAATAGTGT | TGCGGCGACC | GAGTTGCTCT | TGCCCGGCGT | CAATACGGGA |
| | CTTATCACAT | ACGCCGCTGG | CTCAACGAGA | ACGGCCGCA | GTTATGCCCT |
| 1026 | TAATACCGCG | CCACATAGCA | GAACTTTAA | AGTGCTCATC | ATTGGAAAC |
| | ATTATGGCGC | GGTGATTCGT | CTTGAAATTT | TCACGAGTAG | TAACCTTTTG |
| 1076 | GTTCTTCGGG | GCGAAAACTC | TCAAGGATCT | TACCGCTGTT | GAGATCCAGT |
| | CAAGAAGCCC | CGCTTTTGAG | AGTTCCTAGA | ATGGCGACAA | CTCTAGGTCA |

FIG. 36D

Eco57I

AAGCAAAAT GCCCAAAA
TTCCGTTTA CGGCGTTTT

TACTCATACT CTTCCTTTTT
ATGAGTATGA GAAGGAAAAA

TGTCCTCATGA GCGGATACAT
ACAGAGTACT CGCCTATGTA

XhoI
BssHI
AseI

GGGCCATTA ATGGCTCGAG
CCGCGGTAA TACCGAGCTC

BspEI BsrGI

FIG. 36E

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |


1376 CGCGCTTCAG CGCTTTGTCT TCCGGATGTA CATGAAATT
GCCGGAAGTC GCGAACAGA AGCCCTACAT GTACTTTAA
Eco57I BbsI
~~~~~  
~~~~~

FIG. 36F

FIG. 37A

20 30 40

-3'

F A  Y Y C Q

T T T G C G A G T A T T A T T G C C A

V G V Y Y C

G T G G G C G T G T A T T A T T G C C A

V A V Y Y C

G T G G C G G T G T A T T A T T G C C A

| | |
|---|-------|
| A | |
| C | |
| D | |
| E | |
| F | T T T |
| G | |
| H | C A T |
| I | |
| K | |
| L | C T T |
| M | A T G |
| N | |
| P | |
| Q | C A G |
| R | |
| S | |
| T | |
| V | |
| W | |
| Y | |

80% Q

FIG. 37B

| | | |
|-----------|-------------|-----------|
| O.G. FIG. | CLASS | SUBCLASS |
| | APPROVED BY | DRAFTSMAN |

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

50

60

3'- G G A

G

T
A C C T

G

T
A C C T

G

T
A C C T

| | | | | | |
|-------|-------|-------|-------|-------|-------|
| G C T | | | G C T | | G C T |
| | | | | | |
| G A T | G A T | G A T | G A T | | G A T |
| G A G | | | G A G | | G A G |
| T T T | | | T T T | | T T T |
| G G T | G G T | G G T | G G T | | G G T |
| C A T | | | C A T | | C A T |
| A T T | | | A T T | | A T T |
| A A G | | | A A G | | A A G |
| C T T | | | C T T | | C T T |
| A T G | | | A T G | | A T G |
| A A T | A A T | A A T | A A T | | A A T |
| | | | C C T | C C T | C C T |
| C A G | | | C A G | | C A G |
| C G T | | | C G T | | C G T |
| T C T | T C T | T C T | T C T | T C T | T C T |
| A C T | | | A C T | | A C T |
| G T T | | | G T T | | G T T |
| T G G | | | T G G | | T G G |
| T A T | T A T | | T A T | | T A T |
| 50% Y | | | 80% P | | |

FIG. 37C

FIG. 37D

FIG. 38A

FIG. 38B

G G G T K L
 G G C G G C G G C A C G A A G T T A

FIG. 38C

| | | |
|----------------|-----------|----------|
| APPROVED
BY | O.G. FIG. | |
| | CLASS | SUBCLASS |
| DRAFTSMAN | | |

T V L G Q E F
 ACCGTTCTTGGCCAG GAATTC GAGCC-3'
 3'-CCGGTCCCTTAAGCTCGG-5'

FIG. 38D

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

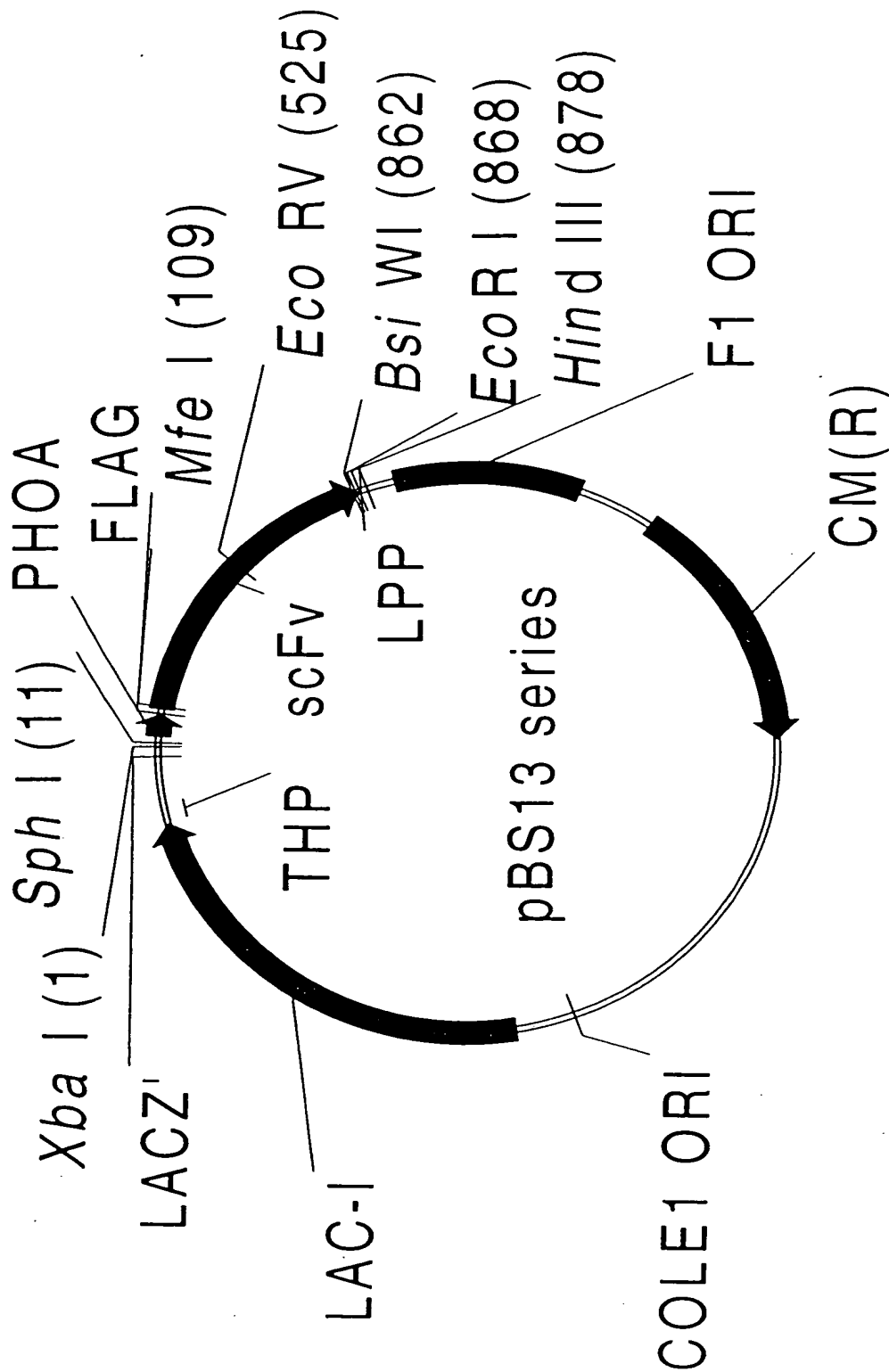


FIG. 39

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

| % soluble | $\kappa 1$ | $\kappa 2$ | $\kappa 3$ | $\kappa 4$ | $\lambda 1$ | $\lambda 2$ | $\lambda 3$ |
|-----------|------------|------------|------------|------------|-------------|-------------|-------------|
| H1A | 61% | 58% | 52% | 42% | 90% | 61% | 60% |
| H1B | 39% | 48% | 66% | 48% | 47% | 39% | 36% |
| H2 | 47% | 57% | 46% | 49% | 37% | 36% | 45% |
| H3 | 85% | 67% | 76% | 61% | 80% | 71% | 83% |
| H4 | 69% | 52% | 51% | 44% | 45% | 33% | 42% |
| H5 | 49% | 49% | 46% | 67% | 54% | 46% | 47% |
| H6 | 90% | 58% | 54% | 47% | 45% | 50% | 51% |

| Total amount
compared to H3 $\kappa 2$ | $\kappa 1$ | $\kappa 2$ | $\kappa 3$ | $\kappa 4$ | $\lambda 1$ | $\lambda 2$ | $\lambda 3$ |
|---|------------|------------|------------|------------|-------------|-------------|-------------|
| H1A | 289% | 94% | 166% | 272% | 20% | 150% | 78% |
| H1B | 219% | 122% | 89% | 139% | 117% | 158% | 101% |
| H2 | 186% | 223% | 208% | 182% | 126% | 60% | 97% |
| H3 | 50% | | 71% | 54% | 59% | 130% | 47% |
| H4 | 37% | 55% | 60% | 77% | 195% | 107% | 251% |
| H5 | 98% | 201% | 167% | 83% | 93% | 128% | 115% |
| H6 | 65% | 117% | 89% | 109% | 299% | 215% | 278% |

FIG. 40A

| | |
|-----------|-----------|
| APPROVED | O.G. FIG. |
| BY | CLASS |
| DRAFTSMAN | SUBCLASS |

| Soluble amount
compared to H3κ2 | κ1 | κ2 | κ3 | κ4 | λ1 | λ2 | λ3 |
|------------------------------------|------|------|------|------|------|------|------|
| H1A | 191% | 88% | 121% | 122% | 26% | 211% | 76% |
| H1B | 124% | 95% | 83% | 107% | 79% | 142% | 59% |
| H2 | 126% | 204% | 139% | 130% | 66% | 50% | 70% |
| H3 | 63% | - | 81% | 49% | 69% | 143% | 61% |
| H4 | 40% | 47% | 49% | 54% | 95% | 55% | 125% |
| H5 | 69% | 158% | 116% | 80% | 72% | 84% | 84% |
| H6 | 85% | 122% | 87% | 77% | 162% | 162% | 212% |
| | McPC | | | | | | |
| soluble | 38% | | | | | | |
| %H3κ2 total | 117% | | | | | | |
| %H3κ2 soluble | 69% | | | | | | |

FIG. 40B